Arkansas Department of Health

Public Water Supply Sanitary Survey

Name of System Crossett Water Commission **PWS ID#** 017

County Ashley

Date of Survey September 18, 2013

Survey By Mac Faulkner

Title District Engineer

Public Water Supply Sanitary Survey **Arkansas Department of Health**

Name of System: Crossett Water Commission PWS # 017

Address: P.O. Box 616 Crossett, AR 71635
Manager: Anthony Adcock License #: Telephone #: 870.364.4195
Alternate Telephone #: Cell #: Fax #: 870.364.7862 E-mail Address: crossettwater@windstream.net
Treatment Plant Supervisor: Anthony Adcock License #: 08399T4 Telephone #: 870.364.7264
Distribution System Supervisor: Anthony Adcock License #: 08399D4 Telephone #: 870.364.7264
Number of Licensed Employees: 4 # of Treatment Licenses: 3 # of Distribution Licenses: 4
Chairman: Cecil Ritter (H) Telephone #: 870.364.6230
Address: 1706 Parkway Drive, Crossett, AR 71635 (W) Telephone #:

# of Services: 3215 %Metered: 100 Total Pop. Served: 8721 Retail Pop.Served: 8038 Consecutive Pop.Served: 683
Domestic: 2895 # Commercial: 260 # Wholesale: 0 # Industrial: 10 # Irrigation: 50
Engineering District: 5 County Name: Ashley County Code #: 2
Plumbing Inspector: Anthony Adcock License #: pending testingoffice

Plant Name & ID	Type of Plant	Construction Date	# of Sources	Type(s) of Source
WTP#1 & 01	Softening, Iron removal, and Fluoridation	1974*	5	Ground

* Major improvements to WTP including a second clarifier were made in 2009. A list of improvements is attached.

Maximum System Capacity: 4.5 **MGD (All Plants)**

Total System Storage: 2.4 **MG** **Useable System Storage:** 1.25 **MG**

Production Figures								
System Segment / Plant Name & ID	Capacity (MGD)	Limiting Factor	Code	Maximum Demand (MGD)	Maximum Demand %Cap.	Average Demand (MGD)	Average Demand %Cap.	Population Served
WTP #1 & 01	4.5	Filters	05	1.55	34.4 %	0.92	20.4 %	8721
					%		%	
					%		%	
					%		%	
Primary System	4.5			1.55	34.4 %	0.92	20.4 %	8038
Consecutive Systems		PWS ID #	Status					
West Ashley Co. PWS #878	4.5	Hydraulic Capacity	P	0.057	1.3%	0.045	1.0%	683
Industrial Demand								
Unaccounted-for Water	9%							

(Status: P – Primary, E – Emergency, I – Intermittent, O – Other)

☒ Estimated ☐ Calculated

Identify Significant Deficiencies: No Significant Deficiency noted.

Give brief evaluation of system condition and operation: System condition and operation is very good. Management and the Operators are very knowledgeable of the system and the regulatory requirements. System needs to name an operator in responsible charge for both treatment and distribution.

Public Water Supply Sanitary Survey **Arkansas Department of Health**

Name of System: Crossett Water Commission PWS # 017

Well Source

Source:(# 1 of 5)

Source Entity ID #: 101 ☒ Groundwater ☐ GWUDI Source Type Code W (Groundwater - W, GWUDI - G)
Name of Source Well #1 Source Aquifer(s) Cockfield Maximum Pumping Capacity 528 GPM

Location of Source: Hwy Ashley 7E Extension of Water Well Road East of WTP.
(Give directions from major road/street or highway intersection.)

SE ID#	Well # / Name	Date Drilled	Total Depth (ft)	Casing Size (in)	Casing Depth (ft)	Grout Depth (ft)	Well Yield (gpm)	Protection Radius (ft)	Latitude (d/m/s)	Longitude (d/m/s)
101	Well #1	1972	182	16	136	136	528	20 X 20	33/06/36	91/56/54

(See Pumping Facilities for Additional Information)

Yes	No		
• ☒	☐	1.	**Is well and location approved by the ADH?**
• ☒	☐	2.	**Raw water quality/quantity is not indicative of an immediate sanitary risk?**
☒	☐	2.1	The well has been determined not to be hydrologically sensitive. (☐ N/A)
☒	☐	2.2	Treatment is not required according to the requirements of the GWR. (☐ N/A)
		2.3	Parameters of concern in the raw water. ☐ None ☐ Microbial ☒ Iron ☒ Manganese ☐ H_2S ☐ CO_2 ☒ Other Hardness
		2.4	What is the nature of the immediate vicinity? ☒ Residential ☐ Industrial ☐ Agricultural ☒ Forest ☐ Other
		2.5	List possible sources of pollution: Possible residential and/or forestry chemicals and transportation spills.
☒	☐	2.6	Has the system been free of shortages of source in the past?
• ☒	☐	3.	**Source location, construction, maintenance or operating practices does not result in a sanitary hazard.**
☒	☐	3.1	Is the required restricted zone adequately controlled? Method (s): ☒ Ownership ☐ Ordinances ☐ Easement ☐ Zoning ☒ Fencing
		3.2	What is the size of the owned/protected area? > 5 Acres
☒	☐	3.3	Are raw water pumping facilities (i.e. Well size, pumps, etc.) adequate and in good repair?
☒	☐	3.4	Are multiple power sources or auxiliary power units available and operable?
☒	☐	3.5	Is well site properly drained and protected from flooding?
☒	☐	3.6	Is adequate concrete pad surrounding well head present, if required? (☐ N/A)
☒	☐	3.7	Is the casing and grout adequate?
☒	☐	3.8	Does the casing extend (12in.) above the floor/slab and safely above the maximum flood elevation?
☒	☐	3.9	Is top of casing sealed?
☒	☐	3.10	Does well vent terminate 24 inches above floor/ground/ max. flood level and is it properly screened?
☒	☐	3.11	Does well have suitable raw water sample tap?
☒	☐	3.12	Are check valves, gate valves, water meters and appropriate appurtenances provided, operated and maintained properly?
☒	☐	3.13	Is lightning protection provided?
☒	☐	3.14	Is draw down gauge provided and operable?
☒	☐	4.	Does the system have an active source water protection program? If yes, what control measures are in place? ☒ Ownership of WHPA ☐ Easements ☐ Zoning ☐ Ordinances ☒ Resolution ☒ Emergency Plan ☒ Contingency Plan for loss of source ☒ Wellhead Protection Area Signs ☐ Local Team developed to promote Source Water Protection ☐ Other

Comments: 3.4 System owns two portable generators capable of operating one well each. The screen is missing and needs to be replaced with a 24 mesh screen.

Public Water Supply Sanitary Survey **Arkansas Department of Health**

Name of System: Crossett Water Commission PWS # 017

Well Source

Source:(# 2 of 5)

Source Entity ID #: 102 ☒ Groundwater ☐ GWUDI Source Type Code W (Groundwater - W, GWUDI - G)

Name of Source Well #2 Source Aquifer(s) Cockfield Maximum Pumping Capacity 363 GPM

Location of Source: Hwy Ashley 7E Extension of Water Well Road East of WTP.
(Give directions from major road/street or highway intersection.)

SE ID#	Well # / Name	Date Drilled	Total Depth (ft)	Casing Size (in)	Casing Depth (ft)	Grout Depth (ft)	Well Yield (gpm)	Protection Radius (ft)	Latitude (d/m/s)	Longitude (d/m/s)
102	Well #2	1972	124	16	124	124	363	20 X 20	33/06/30	91/56/33

(See Pumping Facilities for Additional Information)

Yes	No		
• ☒	☐	1.	**Is well and location approved by the ADH?**
• ☒	☐	2.	**Raw water quality/quantity is not indicative of an immediate sanitary risk?**
☒	☐	2.1	The well has been determined not to be hydrologically sensitive. (☐ N/A)
☒	☐	2.2	Treatment is not required according to the requirements of the GWR. (☐ N/A)
		2.3	Parameters of concern in the raw water. ☐ None ☐ Microbial ☒ Iron ☒ Manganese ☐ H_2S ☐ CO_2 ☒ Other Hardness
		2.4	What is the nature of the immediate vicinity? ☒ Residential ☐ Industrial ☐ Agricultural ☒ Forest ☐ Other
		2.6	List possible sources of pollution: Possible residential and/or forestry chemicals and transportation spills.
☒	☐	2.6	Has the system been free of shortages of source in the past?
• ☒	☐	3.	**Source location, construction, maintenance or operating practices does not result in a sanitary hazard.**
☒	☐	3.1	Is the required restricted zone adequately controlled? Method (s): ☐ Ownership ☐ Ordinances ☒ Easement ☐ Zoning ☒ Fencing
		3.2	What is the size of the owned/protected area? 20' X 20'
☒	☐	3.3	Are raw water pumping facilities (i.e. Well size, pumps, etc.) adequate and in good repair?
☒	☐	3.4	Are multiple power sources or auxiliary power units available and operable?
☒	☐	3.5	Is well site properly drained and protected from flooding?
☒	☐	3.6	Is adequate concrete pad surrounding well head present, if required? (☐ N/A)
☒	☐	3.7	Is the casing and grout adequate?
☒	☐	3.8	Does the casing extend (12in.) above the floor/slab and safely above the maximum flood elevation?
☒	☐	3.9	Is top of casing sealed?
☒	☐	3.10	Does well vent terminate 24 inches above floor/ground/ max. flood level and is it properly screened?
☒	☐	3.11	Does well have suitable raw water sample tap?
☒	☐	3.12	Are check valves, gate valves, water meters and appropriate appurtenances provided, operated and maintained properly?
☒	☐	3.13	Is lightning protection provided?
☒	☐	3.14	Is draw down gauge provided and operable?
☒	☐	4.	Does the system have an active source water protection program? If yes, what control measures are in place? ☐ Ownership of WHPA ☒ Easements ☐ Zoning ☐ Ordinances ☒ Resolution ☒ Emergency Plan ☒ Contingency Plan for loss of source ☒ Wellhead Protection Area Signs ☐ Local Team developed to promote Source Water Protection ☐ Other

Comments: 3.4 System owns two portable generators capable of operating one well each.

Public Water Supply Sanitary Survey **Arkansas Department of Health**

Name of System: Crossett Water Commission PWS # 017

Well Source

Source:(# 3 of 5)

Source Entity ID #: 103 ☒ Groundwater ☐ GWUDI Source Type Code W (Groundwater - W, GWUDI - G)
Name of Source Well #3 Source Aquifer(s) Cockfield Maximum Pumping Capacity 384 GPM

Location of Source: Hwy Ashley 7E Extension of Water Well Road East of WTP.
(Give directions from major road/street or highway intersection.)

SE ID#	Well # / Name	Date Drilled	Total Depth (ft)	Casing Size (in)	Casing Depth (ft)	Grout Depth (ft)	Well Yield (gpm)	Protection Radius (ft)	Latitude (d/m/s)	Longitude (d/m/s)
103	Well #3	1972	180	16	131	131	384	20 X 20	33/06/28	91/56/28

(See Pumping Facilities for Additional Information)

Yes	No		
• ☒	☐	1.	**Is well and location approved by the ADH?**
• ☒	☐	2.	**Raw water quality/quantity is not indicative of an immediate sanitary risk?**
☒	☐	2.1	The well has been determined not to be hydrologically sensitive. (☐ N/A)
☒	☐	2.2	Treatment is not required according to the requirements of the GWR. (☐ N/A)
		2.3	Parameters of concern in the raw water. ☐ None ☐ Microbial ☒ Iron ☒ Manganese ☐ H_2S ☐ CO_2 ☒ Other Hardness
		2.4	What is the nature of the immediate vicinity? ☒ Residential ☐ Industrial ☐ Agricultural ☒ Forest ☐ Other
		2.7	List possible sources of pollution: Possible residential and/or forestry chemicals and transportation spills.
☒	☐	2.6	Has the system been free of shortages of source in the past?
• ☒	☐	3.	**Source location, construction, maintenance or operating practices does not result in a sanitary hazard.**
☒	☐	3.1	Is the required restricted zone adequately controlled? Method (s): ☐ Ownership ☐ Ordinances ☒ Easement ☐ Zoning ☒ Fencing
		3.2	What is the size of the owned/protected area? 20' X 20'
☒	☐	3.3	Are raw water pumping facilities (i.e. Well size, pumps, etc.) adequate and in good repair?
☒	☐	3.4	Are multiple power sources or auxiliary power units available and operable?
☒	☐	3.5	Is well site properly drained and protected from flooding?
☒	☐	3.6	Is adequate concrete pad surrounding well head present, if required? (☐ N/A)
☒	☐	3.7	Is the casing and grout adequate?
☒	☐	3.8	Does the casing extend (12in.) above the floor/slab and safely above the maximum flood elevation?
☒	☐	3.9	Is top of casing sealed?
☒	☐	3.10	Does well vent terminate 24 inches above floor/ground/ max. flood level and is it properly screened?
☒	☐	3.11	Does well have suitable raw water sample tap?
☒	☐	3.12	Are check valves, gate valves, water meters and appropriate appurtenances provided, operated and maintained properly?
☒	☐	3.13	Is lightning protection provided?
☒	☐	3.14	Is draw down gauge provided and operable?
☒	☐	4.	Does the system have an active source water protection program? If yes, what control measures are in place? ☐ Ownership of WHPA ☒ Easements ☐ Zoning ☐ Ordinances ☒ Resolution ☒ Emergency Plan ☒ Contingency Plan for loss of source ☒ Wellhead Protection Area Signs ☐ Local Team developed to promote Source Water Protection ☐ Other

Comments: 3.4 System owns two portable generators capable of operating one well each.

Public Water Supply Sanitary Survey **Arkansas Department of Health**

Name of System: Crossett Water Commission PWS # 017

Well Source

Source:(# 4 of 5)

Source Entity ID #: 104 ☒ Groundwater ☐ GWUDI Source Type Code W (Groundwater - W, GWUDI - G)
Name of Source Well #4 Source Aquifer(s) Cockfield Maximum Pumping Capacity 394 GPM

Location of Source: Hwy Ashley 7E Extension of Water Well Road East of WTP.
(Give directions from major road/street or highway intersection.)

SE ID#	Well # / Name	Date Drilled	Total Depth (ft)	Casing Size (in)	Casing Depth (ft)	Grout Depth (ft)	Well Yield (gpm)	Protection Radius (ft)	Latitude (d/m/s)	Longitude (d/m/s)
104	Well #4	1972	170	16	132	132	394	20 X 20	33/06/25	91/56/28

(See Pumping Facilities for Additional Information)

Yes	No		
• ☒	☐	1.	**Is well and location approved by the ADH?**
• ☒	☐	2.	**Raw water quality/quantity is not indicative of an immediate sanitary risk?**
☒	☐	2.1	The well has been determined not to be hydrologically sensitive. (☐ N/A)
☒	☐	2.2	Treatment is not required according to the requirements of the GWR. (☐ N/A)
		2.3	Parameters of concern in the raw water. ☐ None ☐ Microbial ☒ Iron ☒ Manganese ☐ H_2S ☐ CO_2 ☒ Other Hardness
		2.4	What is the nature of the immediate vicinity? ☒ Residential ☐ Industrial ☐ Agricultural ☒ Forest ☐ Other
		2.8	List possible sources of pollution: Possible residential and/or forestry chemicals and transportation spills.
☒	☐	2.6	Has the system been free of shortages of source in the past?
• ☒	☐	3.	**Source location, construction, maintenance or operating practices does not result in a sanitary hazard.**
☒	☐	3.1	Is the required restricted zone adequately controlled? Method (s): ☒ Ownership ☐ Ordinances ☐ Easement ☐ Zoning ☒ Fencing
		3.2	What is the size of the owned/protected area? 20' X 20'
☒	☐	3.3	Are raw water pumping facilities (i.e. Well size, pumps, etc.) adequate and in good repair?
☒	☐	3.4	Are multiple power sources or auxiliary power units available and operable?
☒	☐	3.5	Is well site properly drained and protected from flooding?
☒	☐	3.6	Is adequate concrete pad surrounding well head present, if required? (☐ N/A)
☒	☐	3.7	Is the casing and grout adequate?
☒	☐	3.8	Does the casing extend (12in.) above the floor/slab and safely above the maximum flood elevation?
☒	☐	3.9	Is top of casing sealed?
☒	☐	3.10	Does well vent terminate 24 inches above floor/ground/ max. flood level and is it properly screened?
☒	☐	3.11	Does well have suitable raw water sample tap?
☒	☐	3.12	Are check valves, gate valves, water meters and appropriate appurtenances provided, operated and maintained properly?
☒	☐	3.13	Is lightning protection provided?
☒	☐	3.14	Is draw down gauge provided and operable?
☒	☐	4.	Does the system have an active source water protection program? If yes, what control measures are in place? ☐ Ownership of WHPA ☒ Easements ☐ Zoning ☐ Ordinances ☒ Resolution ☒ Emergency Plan ☒ Contingency Plan for loss of source ☒ Wellhead Protection Area Signs ☐ Local Team developed to promote Source Water Protection ☐ Other

Comments: 3.4 System owns two portable generators capable of operating one well each. Noisy bearing, needs to be checked to verify this is normal operation and not about to fail..

Public Water Supply Sanitary Survey **Arkansas Department of Health**

Name of System: Crossett Water Commission PWS # 017

Well Source

Source:(# 5 of 5)

Source Entity ID #: 105 ☒ Groundwater ☐ GWUDI Source Type Code W (Groundwater - W, GWUDI - G)
Name of Source Well #5 Source Aquifer(s) Cockfield Maximum Pumping Capacity 620 GPM

Location of Source: Hwy Ashley 7E Extension of Water Well Road East of WTP.
(Give directions from major road/street or highway intersection.)

SE ID#	Well # / Name	Date Drilled	Total Depth (ft)	Casing Size (in)	Casing Depth (ft)	Grout Depth (ft)	Well Yield (gpm)	Protection Radius (ft)	Latitude (d/m/s)	Longitude (d/m/s)
105	Well #5	2004	192	20	143	143	620	100 X100	33/06/24	91/56/05

(See Pumping Facilities for Additional Information)

Yes	No		
• ☒	☐	1.	**Is well and location approved by the ADH?**
• ☒	☐	2.	**Raw water quality/quantity is not indicative of an immediate sanitary risk?**
☒	☐	2.1	The well has been determined not to be hydrologically sensitive. (☐ N/A)
☒	☐	2.2	Treatment is not required according to the requirements of the GWR. (☐ N/A)
		2.3	Parameters of concern in the raw water. ☐ None ☐ Microbial ☒ Iron ☒ Manganese ☐ H_2S ☐ CO_2 ☒ Other Hardness
		2.4	What is the nature of the immediate vicinity? ☒ Residential ☐ Industrial ☐ Agricultural ☒ Forest ☐ Other
		2.5	List possible sources of pollution: Possible residential and/or forestry chemicals and transportation spills.
☒	☐	2.6	Has the system been free of shortages of source in the past?
• ☒	☐	3.	**Source location, construction, maintenance or operating practices does not result in a sanitary hazard.**
☒	☐	3.1	Is the required restricted zone adequately controlled? Method (s): ☒ Ownership ☐ Ordinances ☐ Easement ☐ Zoning ☒ Fencing
		3.2	What is the size of the owned/protected area? 100' X 100'
☒	☐	3.3	Are raw water pumping facilities (i.e. Well size, pumps, etc.) adequate and in good repair?
☒	☐	3.4	Are multiple power sources or auxiliary power units available and operable?
☒	☐	3.5	Is well site properly drained and protected from flooding?
☒	☐	3.6	Is adequate concrete pad surrounding well head present, if required? (☐ N/A)
☒	☐	3.7	Is the casing and grout adequate?
☒	☐	3.8	Does the casing extend (12in.) above the floor/slab and safely above the maximum flood elevation?
☒	☐	3.9	Is top of casing sealed?
☒	☐	3.10	Does well vent terminate 24 inches above floor/ground/ max. flood level and is it properly screened?
☒	☐	3.11	Does well have suitable raw water sample tap?
☒	☐	3.12	Are check valves, gate valves, water meters and appropriate appurtenances provided, operated and maintained properly?
☒	☐	3.13	Is lightning protection provided?
☒	☐	3.14	Is draw down gauge provided and operable?
☒	☐	4.	Does the system have an active source water protection program? If yes, what control measures are in place? ☒ Ownership of WHPA ☐ Easements ☐ Zoning ☐ Ordinances ☒ Resolution ☒ Emergency Plan ☒ Contingency Plan for loss of source ☒ Wellhead Protection Area Signs ☐ Local Team developed to promote Source Water Protection ☐ Other

Comments: 3.4 System owns two portable generators capable of operating one well each.

Public Water Supply Sanitary Survey **Arkansas Department of Health**

Name of System: Crossett Water Commission PWS # 017

Treatment Plant

(Page 1) Plant:(# 1 of 1)

Plant ID # 01 Plant Name: WTP#1

Plant Location: 1100 Waterwell Road in southeast Crossett

(Give directions from major road/street or highway intersection.)

Purpose of Plant ☐ Surface ☒ Iron/Manganese Removal/Control ☐ Organic/DBP Removal
☒ Disinfection ☒ Fluoridation ☐ Corrosion Control ☒ Other Lime Softening

Treatment Processes (Provide System Flow Schematic & Locate Chemical Injection Points & Water Quality Monitoring Sites)

☐ No Treatment Provided
☒ Aeration: ☐ Cascade/Tray ☒ Forced/Induced Draft ☐ Pressure Approved Capacity 4.5 MGD
☒ Disinfection / ☒ Pre ☒ Intermediate ☒ Final ☐ Breakpoint Chlorination ☐ Booster (Indicate on Flow Schematic)
Oxidation Type: ☒ Cl_2 Gas ☐ Hypochlorite ☐ Ozone ☐ ClO_2 ☐ Chloramines ☐ UV ☐ $KMnO_4$
☐ Other

Location(s) for CT contact				
Plant Segment	**Type of Disinfectant Used**	**Disinfectant Injection Point**	**CT Monitoring Point**	**T_{10} Time @ Maximum Flow Rate (min.)**

☐ Rapid Mix: ☐ Hydraulic ☐ Mechanical ☐ Static # of units ____ Approved Capacity ____ MGD
Volume: ____ Gal. Detention Time: ____ sec. Dimensions (ft.): L ____ W ____ Dia. ____ D ____
☒ Reaction Tank: Volume 62,435 Gal. Detention Time: 20 min. Dimensions (ft.): L 35'-8" W 17'-0" Dia. ------ D 17'-0"*

☐ Flocculation: ☐ Hydraulic ☐ Mechanical Approved Capacity ____ MGD

Treatment Train	Dimensions (ft.)				Volume (gal)	Theoretical Detention Time (min)	Flow-through Velocity (fpm)	# of Chambers
	L	W	Dia.	D				

☐ Sedimentation: ☐ Conventional ☒ Upflow ☐ Solids Contact Unit ☐ Contact Clarifier ☐ Other ____
☐ Tube/Plate Settlers-Area ____ ft^2 Approved Capacity 4.5 MGD

Treatment Train	Dimensions (ft.)				Volume (gal)	Theoretical Det. Time (min.)	Flow-through Velocity (fps)	Loading Rate (gpd/ft^2)	Weir Loading Rate (gpm/ft)
	L	W	Dia.	D					
Up-Flow Clarifier #1			55'-0"	13'-11"	247,000	105	10.24	1.16	11.74
Up-Flow Clarifier #2			55'-0'	14'-1"	250,000	80	13.65	1.55	15.66

Comments: *Operating level (depth) is 14' – 9". The turbine motor for Basin #2 is out for repair. The turbine motor for Basin #1 was running hot and noisy. It should be checked to verify that this is normal operation and not about to fail.

Public Water Supply Sanitary Survey **Arkansas Department of Health**

Name of System: Crossett Water Commission PWS # 017

Treatment Plant
(Page 2)

Plant ID # 01 Plant Name: WTP#1

☒ Filtration: ☒ Rapid Sand ☐ Pressure Sand ☐ Bag/Cartridge ☐ Other _____ Approved Capacity: 4.5 MGD

Filter	Dimensions (ft.)			Area (ft^2)	Filtration Rate (gpm/ft^2)	Backwash Rate (gpm/ft^2)	Media Type	Media Code	Micron Rating (final bag/cartridge filter)
	L	W							
#1	18'-0"	14'-0"	---	252	3.1	17.9	Sand	070	NA
#2	18'-0"	14'-0"	---	252	3.1	17.9	Sand	070	NA
#3	18'-0"	14'-0"	---	252	3.1	17.9	Sand	070	NA
#4	18'-0"	14'-0"	---	252	3.1	17.9	Sand	070	NA

☒ Loss of Head Gauges ☒ Rate of Flow Controllers ☒ Filter to Waste ☒ Filter Surface Wash ☒ Air Scour
Backwash Water Pump: 4500 GPM @ 43 Ft of Head ☒ Rate of Flow Control for Backwash
Backwash Water Tank Cap: 139,450 Gal. Bag/Cartridge Pre-filters Pore Size Rating _____

☐ Membrane: ☐ Micro/Ultra Filtration ☐ Nanofiltration ☐ Reverse Osmosis Approved Capacity: _____ MGD
☐ Pressure ☐ Suction ☐ Loss of Head Gauges ☐ Air Scour ☐ Backwash
Frequency and type of chemical cleaning _____

Train Array	# of bundles /cassettes	Flux Rate (gpd/ft^2)	Media Type	Media Code	Pore size or MW cutoff	Frequency of Pressure Decay Tests

☒ Softening: ☒ Excess Lime ☐ Lime/Soda Ash ☒ w/ Recarbonation ☐ Ion Exchange
☒ Fluoridation: ☒ Hydrofluosilicic Acid ☐ Sodium Silicofluoride ☐ Sodium Fluoride
Fluoridation startup date: 1974 Give type and date of authorization: City Counsel Ordinance (1974)
☐ Sequestration: Sequestering Agent: _____ Purpose: _____
☐ Corrosion Control: ☐ pH Adjustment _____ ☐ Corrosion Inhibitor _____

☒ Clearwell:

# / Name	Capacity (gallons)	Dimensions (ft.)			Total Depth (ft.)	Minimum Operating Depth (ft.)
		L	W	Dia.		
Clearwell #1	139,450	66'-6"	28'-0"	----	10'-0"	3'-0"

Comments: The filter control room had a roof leak that had caused some damage to the controls. See the attached pictures. The repair needs to be completed.

Treatment Plant

(Page 3)

Plant ID # 01 Plant Name: WTP #1

Yes	No	N/A		
• ☒	☐		1.	**Are treatment plant and individual processes functioning properly and within approved design parameters to ensure water quality? ☐ Aeration ☐ Mixing ☐ Coagulation/Flocculation ☐ Sedimentation ☐ Filtration ☐ Disinfection ☐ Other**
☒	☐		1.1	Is operation and maintenance of unit processes satisfactory?
☒	☐		1.2	Is the finished water quality satisfactory?
☒	☐		1.3	Is site free from outside contamination? (i.e. aerial spraying, stack emissions, flooding, etc.)
☒	☐		1.4	Is finished water pumping capacity adequate?
☒	☐		1.5	Is standby or auxiliary power available and operable?
☒	☐		1.6	Is master meter adequate and operable? ☐ Unknown
☒	☐		1.7	Are structures and grounds satisfactory?
☒	☐		1.8	Are instrumentation and controls adequate and operable?
☒	☐		1.9	Backwash water is not recycled. If no, where is recycle fed._____ % of influent ____
• ☐	☐		2.	**Is adequate disinfection being provided to meet CT and/or entry point requirements? (☒ N/A)**
☒	☐		2.1	Has disinfection been free from interruptions during the past 12 months?
☒	☐		2.2	Are operational standby equipment provided or critical spare parts on hand?
☒	☐		3.	Has fluoride residual been maintained at optimum level during the past twelve months? (☐ N/A)
• ☐	☐		4.	**Are alarms with auto dialers and/or automatic shutdown provided for turbidity and disinfection control for surface and GWUDI systems when plant is unstaffed. (☒ N/A)**

Process Alarms				
Process or Water Quality Parameter Monitored	Set Points		Auto-dialer (Yes/No)	Auto-Shutdown (Yes/No)
	Low	High		
Tank #1 & Tank #2 levels	30.0'	39.0'	Yes	No
Ground Tank levels	30.0'	39.5'	Yes	No
Clearwell levels	2.5'	9.8'	Yes	No

Comments: 1.5 System has two portable generators capable of operating WTP.

Public Water Supply Sanitary Survey **Arkansas Department of Health**

Name of System: Crossett Water Commission PWS # 017

Treatment Plant

(Page 4)

Plant ID # 01 Plant Name: WTP #1

Chemical Treatment (feed points illustrated on Process Flow Diagram)					
Chemicals Added	Type of Feeder	Model	Feeder Capacity	Function	Code
Chlorine	Gas	Hydro Instruments	100#/day	Disinfection	001
Lime	Dry	Merrick Model 50-D	960#/hr.	Softening	007
Carbon Dioxide	Gas	Tomco Systems	1500#/day	Re-carbonation	012
Fluoride	Acid	Thermo Scientific	70 #/hr.	Dental Health	016

Feeder	Control System
Chlorine	Raw Water Flow
Lime	Raw Water Flow
Carbon Dioxide	Raw Water Flow
Hydrofluosilicic Acid	Raw Water Flow

Yes	No		
☒	☐	1.	Are chemicals used in the treatment process NSF 60/61 listed?
☒	☐	2.	Are chemical storage and feeder facilities secured and adequately ventilated (if needed)?
☒	☐	3.	Is the chemical feed equipment being operated and maintained properly?
☒	☐	4.	Are proper feed system appurtenances provided? ☒ Scales ☐ Calibration equipment ☒ Meter ☐ Water Softener ☐ Other _____
☒	☐	5.	Is adequate safety equipment available and easily accessible? ☐ Gloves ☐ Apron ☐ Boots ☐ Safety Goggles ☐ Dust Mask ☐ Shower ☐ Eye wash ☐ Other _____
☒	☐	6.	Proper type(s) of leak detection provided Ammonia and W & T automatic alarm (☐ N/A)
☒	☐	7.	Are chemical feed or supply lines free of cross-connections. (See question #2 under Cross-Connection Control Section)

Gas Chlorine Feed Systems (☐ N/A)

☒	☐	1.	Are chlorine storage and use areas isolated from other work areas?
☒	☐	2.	Is the chlorine room force ventilated to the outdoors through exhaust grills located at floor level?
☒	☐	3.	Is a suitable breathing apparatus available, operable, and easily accessible?
☒	☐	4.	Are all doors hinged outward and equipped with panic bars or other safety device?
☒	☐	5.	Is a viewing window provided?
☒	☐	6.	Are all gas cylinders restrained to wall by chaining or by other means?
☒	☐	7.	Are switches for the light and fan located outside of and close to the door?

Ozone or Hypochlorite Generation Systems (☒ N/A)

☐	☐	1.	Gas destruction and/or ventilation provided? (O3-ozone or H_2S-hypochlorite generation)

Comments: _____

Name of System: Crossett Water Commission PWS # 017

Monitoring, Reporting, and Data Verification

Laboratory Testing & Equipment				
Lab Tests	**Frequency**	**Sample Location**	**Method**	**Make & Model #**
Chlorine	Twice Daily	Plant Lab	DPD	Hach DR 2000
Chlorine	Monthly	Per Sample Site Plan	DPD	Hach DR 2000
Fluoride	Daily	Plant Lab	DPD	Hach DR 2000
pH	Daily	Plant Lab	Hach / Electrode	Hach Sension One pH Meter
Hardness	Daily	Plant Lab	EDTA Titration	
Temperature	Weekly	Plant Lab	Thermometer	
Alkalinity	Daily	Plant Lab	Titration	

Calibration Records					
	Calibration Frequency	**Date Last Calibrated**	**Are Calibration Logs Available**	**Field Verification**	
				ADH Results	**System Results**
Chlorine Finish Tot				1.11	1.60
Chlorine Finish Free				0.96	1.30
Fluoride				0.7	0.5
pH lab					7.91 on 7.0 standard

Yes	No	N/A		
• ☒	☐		1.	**Are laboratory facilities, testing equipment, and procedures, accurate, adequate, and operable?**
☒	☐		1.1	Are records of lab tests being maintained?
☒	☐		1.2	Do reagents used have an unexpired shelf life?
☐	☐	☒	1.3	Are continuous turbidimeters and recorders provided on each filter?
☐	☐	☒	1.4	Is continuous chlorine analyzer and recorder provided on plant effluent?
☒	☐		2.	Is all routine compliance monitoring up-to-date? (Check monitoring status report.)
☒	☐		2.1	Are the proper numbers of bacti samples being collected? Number required? 10
☐	☐	☒	2.2	For surface systems with conventional treatment, is raw water alkalinity being monitored?
☐	☐	☒	2.3	For systems using chlorine dioxide, are daily entry point analysis for ClO_2 residual and Chlorite being collected and reported?
☒	☐		3.	Is the system monitored according to ADH approved methods and sample site plan(s)? ☒ Bacti ☐ CT ☐ Disinfectant Residual ☐ THM ☐ HAA5 ☐ ClO_2 Residual Distribution System Samples (☒ N/A) ☐ Chlorite Distribution System Samples (☒ N/A) ☐ Other
☒	☐	☐	4.	Is the system in compliance with the monitoring and reporting requirements of the Lead and Copper Rule as outline in their approved Optimal Corrosion Control and Treatment plan?
☒	☐	☐	5.	Are fluoride check samples submitted monthly?
☒	☐	☐	6.	Are daily fluoride analyses performed, results recorded, and submitted monthly?
• ☒	☐		7.	**Does the system accurately complete Monthly Operational Report forms?**
☒	☐		7.1	Has the system submitted Monthly Operational Report forms on time?
☒	☐		7.2	Does the system have the proper records on file and available for review? ☐ Sanitary Surveys ☐ Bacteriological and Chemical Analysis Reports ☐ Source Water Assessment Report ☐ Sample Site Plans ☐ Optimal Corrosion Control and Treatment Plan for Lead & Copper Rule (☒ N/A) ☐ Disinfection Profile and Benchmark Report (☒ N/A) ☐ Individual Filter Monitoring Data (☒ N/A) ☐ Filter Profile Report (☒ N/A) ☐ Filter Self-Assessment Report (☒ N/A) ☐ CPE report (☒ N/A) ☒ CCR ☐ Other

Comments: The water system laboratory should start a routine calibration of the laboratory equipment and maintain a written record of the calibrations.

Name of System: Crossett Water Commission PWS # 017

Pumping Facilities

Name / Location	Pump Type	Capacity (GPM)	TDH (Ft)	Motor HP	Function	Control System
Raw Water #1	VT	528	130	30	Raw Water to Plant	Clear Well Level
Raw Water #2	VT	363	130	30	Raw Water to Plant	Clear Well Level
Raw Water #3	VT	384	130	30	Raw Water to Plant	Clear Well Level
Raw Water #4	VT	394	130	30	Raw Water to Plant	Clear Well Level
Raw Water #5	VT	620	143	40	Raw Water to Plant	Clear Well Level
Low Service Pump #1	VT	1040	48	20	Transfer Pump	Pressure Switch
Low Service Pump #2	VT	2080	50	40	Transfer Pump	Pressure Switch
Low Service Pump #3	VT	2080	50	40	Transfer Pump	Pressure Switch
Low Service Pump #4	VT	4500	43	60	Back Wash Pump	Pressure Switch
High Service #1	VT	1000	220	75	Pump to System	Pressure Switch @ Tank
High Service #2	VT	2500	220	224	Pump to System	Pressure Switch @ Tank
High Service #3	VT	2500	220	224	Pump to System	Pressure Switch @ Tank

Yes	No	
☒	☐	**1. Pump redundancy, capacity, location, power supply, or controls do not result in negative or repetitive low pressures or water quality problems.**
☒	☐	**2. Finished water pump well/clearwell is watertight.**
☒	☐	3. No cross connections exist; i.e.: water sealed pumps utilizes only potable water; heating and cooling water are not returned to the reservoir or distribution system.
☒	☐	**4. Pump lubricants other than potable water are NSF 60/61 or FDA listed.**

Comments: **All High Service Pumps and the Backwash Pump were replaced in 2009. Backup generator can operate one High Service Pump.**

Name of System: Crossett Water Commission PWS # 017

Storage Facilities

Name / Location	Total Capacity (Gallons)	Useable Volume (Gallons)	Type of Storage	Overflow Elevation (Ft - MSL)	Control System
Clearwell	139,450	0	Ground	142	Pressure Switch
Ground Tank @ Plant	1,000,000	0	Ground Storage	183	Pressure Switch
Tank #1 Elevated Tank	500,000	500,000	Elevated	289.5	Pressure Switch
Tank #2 Elevated Tank	750,000	750,000	Elevated	289.5	Altitude Valve
Total:	**2,389,450**	**1,250,000**	**Useable Storage at Average Demand:**	**32.6**	**Hours**
			Total Storage at Average Demand:	**62.3**	**Hours**

Yes	No		
☒	☐	1.	**Are the storage tanks in a state of good repair and maintained to ensure water quality and the reliability of the water system?**
☒	☐	1.1	Are overflow line, air vent, drain line and roof hatch properly constructed, covered or screened?
☒	☐	1.2	Do low water levels provide adequate pressures?
☐	☐	1.3	The interior tank conditions/coatings do not pose a threat to public health. ☒ Unknown
☒	☐	1.4	Are instruments and controls adequate, operational and being utilized?
☒	☐	1.5	Are sites properly drained and protected from flooding?
☒	☐	1.6	Is control valve pit properly drained and protected from flooding?
☒	☐	1.7	Are tanks adequately protected against corrosion?
☒	☐	1.8	Are sites adequately protected against vandalism? ☐ Site fenced and locked ☐ Roof hatch locked ☐ Bottom rung of ladder removed ☐ Other _____
☒	☐	1.9	Are tanks disinfected after cleaning and / or repairs?
		1.10	What is the inspection / cleaning frequency for the tanks? Tanks are inspected every year. They were last inspected and cleaned on 3/5/2009.
☒	☐	2.	Can tank be isolated from system and drained?

Comments: The "old" 500,000 gallon tank needs to have a 24 mesh screen on the tank overflow. The 1 million gallon ground storage tank may have foundation problems. Please see the attached pictures. Part of the foundation appears to have settled and separated from the tank flange. A competent structural engineer needs to evaluate the foundation to determine if the tank is in danger of a structural failure and loss of the tank.

Name of System: Crossett Water Commission PWS # 017

Distribution System

Yes	No		
• ☒	☐	1.	**Are pressures in all portions of the system maintained above 20 psi during peak demand?** **If no, give reason:** _____
• ☒	☐	2.	**Is a detectable disinfectant residual level maintained in all portions of the system?**
☒	☐	3.	Is a sufficient number of valves provided, properly located, and are they accessible?
☒	☐	3.1	Does the system have a valve exercise / replacement program?
		4.	What piping materials are used? (Estimate percentage) 30% DI/CI 35% PVC 20% Galvanized 15% AC Other: _____
☒	☐	5.	Has the distribution system been free of water quality problems?
☒	☐	6.	Does the system have an adequate maintenance and flushing program?
☒	☐	7.	Are mains and appurtenances properly flushed, disinfected and tested after repairs or extensions?
☒	☐	8.	Is a licensed plumbing inspector available?
☒	☐	9.	Does the system have a meter replacement program?
☒	☐	10.	Does the system have a leak detection program?
☒	☐	11.	Is the overall condition of the distribution system acceptable?

Comments: _____

Cross-Connection Control

Yes	No	N/A		
☒	☐		1.	Does the system have an active Cross-Connection Control Program?
		☐	1.1	Who is responsible for the Cross Connection Control Program? ?Ralph Kinney?
☒	☐		1.2	Does the governing body have an ordinance, by-law or written resolution specifically addressing cross connection control?
☒	☐		1.3	Is the system requiring annual testing of backflow preventers and keeping records of the tests?
• ☒	☐		2.	**Is the system free of high-hazard unprotected cross-connections?** ☐ Treatment Plant ☐ Pumping Facilities ☐ Distribution
• ☒	☐	☐	3.	**Is a Cross-Connection Control Program being enforced for high-hazard services?**
☒	☐	☐	3.1	Have all commercial and industrial customers been surveyed?

Comments: The system has an excellent Cross Connection Control Program.

Public Water Supply Sanitary Survey **Arkansas Department of Health**

Name of System: Crossett Water Commission PWS # 017

System Operations & Management

Identify the management structure of water system.

☐ Mayor/Council ☐ Board of Directors ☒ Commission ☐ Other _____

MEMBERS NAME	TITLE
Cecil Ritter	Chairman
Gene Crawford	Member
Mary Jo Jones	Member
Allen K. Wilson	Member
James Phifer	Member

Yes	No		
☒	☐	1.	Is a current (i.e. less than 10 years old) Long-Range Plan/Master Plan on file with ADH? ☒ Long Range Plan (Date _____) ☐ Master Plan (Date _____)
☒	☐	2.	A written emergency plan is on file at the water system.
☒	☐	3.	The emergency plan is up to date and contains the proper names, numbers, etc.
☒	☐	4.	**Management provides the necessary budget, personnel, security measures, maintenance or repair parts to meet regulatory requirements and provide for the production of an adequate quantity of safe drinking water.** ☐ **Adequate budget** ☐ **Sufficient / Qualified staff** ☐ **Adequate / Sufficient parts inventory** ☐ **Other** _____
☒	☐	5.	Have all major modifications (since previous survey) been approved by ADH?
☒	☐	6.	Are the systems records being maintained according with regulatory requirements? ☐ Maintenance and repair records ☐ System maps ☐ Operating reports
☒	☐	7.	Is the maximum demand less than 80 percent of capacity (i.e. source, plant, pumping)? If no, discuss corrective actions. _____
☐	☐	8.	If the system has greater than 15% unaccounted for water, are corrective actions being taken? Discuss corrective actions. (☒ N/A) _____
☒	☐	9.	Has the system been free of any violations since the last survey? ☐ TCR ☐ MRDL ☐ IOC ☐ VOC ☐ SOC ☐ Radio-chemicals ☐ THM ☐ HAA5 (☐ N/A) ☐ Bromate (☒ N/A) ☐ Chlorite (☒ N/A) ☐ Combined filter turbidity (☒ N/A) ☐ Plant Effluent Disinfectant Residual (☒ N/A) ☐ CT (☒ N/A) ☐ Enhanced Coagulation – TOC removal (☒ N/A) ☐ Other _____
☒	☐	10.	Is system's Disinfection By-Product levels less than 80% of the MCL and not trending upward significantly since the last survey? ☐ TTHM ☐ HAA5 ☐ Bromate (☒ N/A) ☐ Chlorite (☒ N/A)
		11.	What is the required license grade level for this system? Treatment 3 Distribution 2
☒	☐	12.	Does system have a completed source water assessment?
☒	☐	13.	Is source water assessment report on file and accessible to the public?

Comments: _____

Public Water Supply Sanitary Survey **Arkansas Department of Health**

Name of System: Crossett Water Commission PWS # 017

Operator Certification

- ☒ ☐ 1. **The operator(s) or responsible person(s) in charge of the treatment facility and/or distribution facilities have the required State certification.**
- ☒ ☐ 2. Are all persons making individual judgements that affect water quality properly licensed?
- ☒ ☐ 3. Does the system have a sufficient number of licensed staff to perform all water quality related duties?
- ☒ ☐ 4. Are operators provided training in the proper use of safety equipment?

Operator	Title	License #
Anthony Adcock	Chief Operator	08399D4 & T4
Jacob Adams	Operator	09296D2
Albert Mills	Operator	07248D2 & T2

Comments: The system needs to name a water operator in responsible charge for both treatment and distribution.

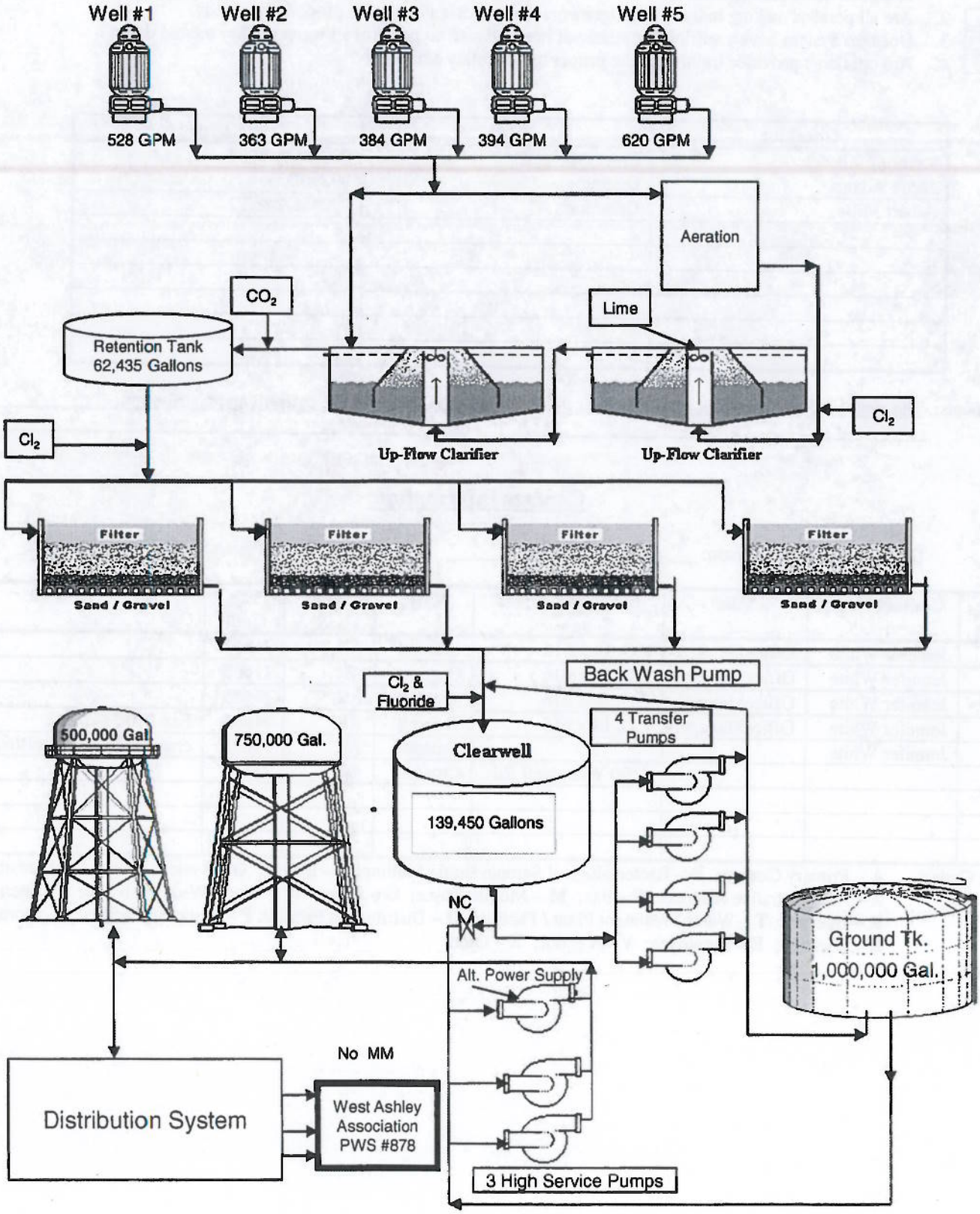
Contact Information

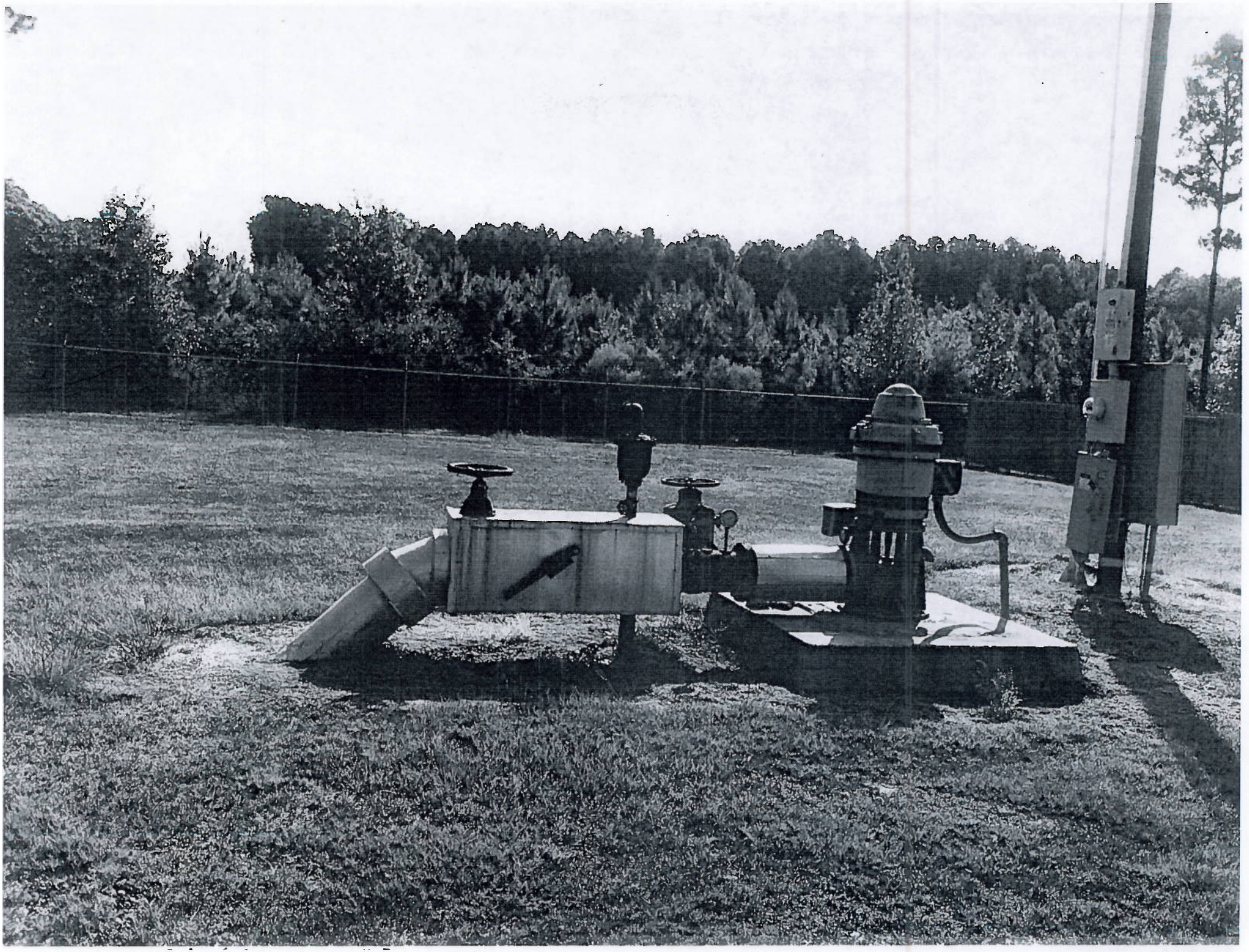
Emergency Contact Person: Anthony Adcock Emergency Contact Phone Number: 870.364.8276

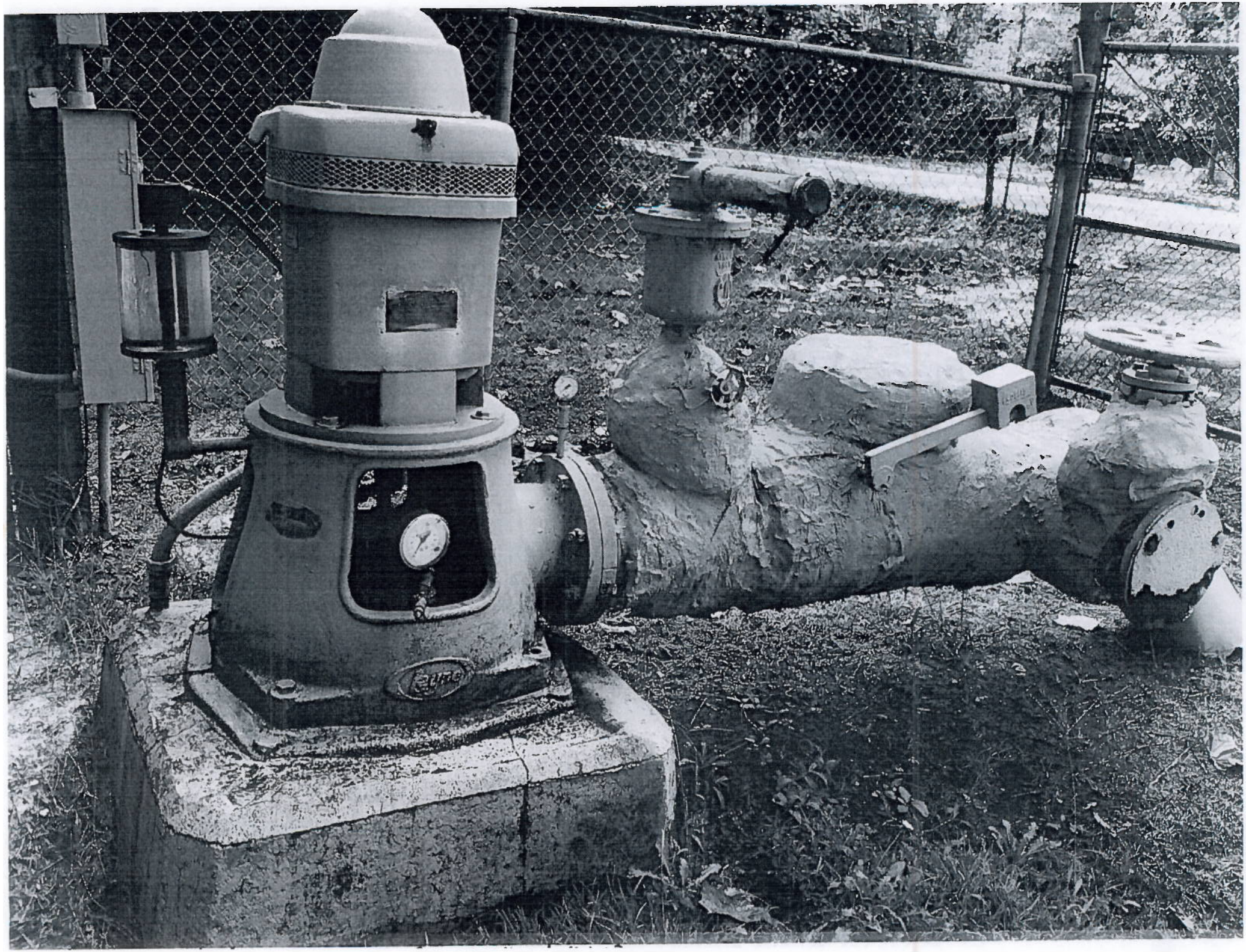
Type Code	Contact Name	Title	Mailing Address	City	State	Zip Code	E-Mail
B	Jennifer White	OfficeManager	P.O. Box 616	Crossett	AR	71635	
O	Jennifer White	OfficeManager	P.O. Box 616	Crossett	AR	71635	
$	Jennifer White	OfficeManager	P.O. Box 616	Crossett	AR	71635	
F	Jennifer White	OfficeManager	P.O. Box 616	Crossett	AR	71635	Fax 870.364.7862
I	Jennifer White			Crossett	AR	71635	crossettwater@windstream.net
L			1100 Waterwell Rd	Crossett	AR	71635	

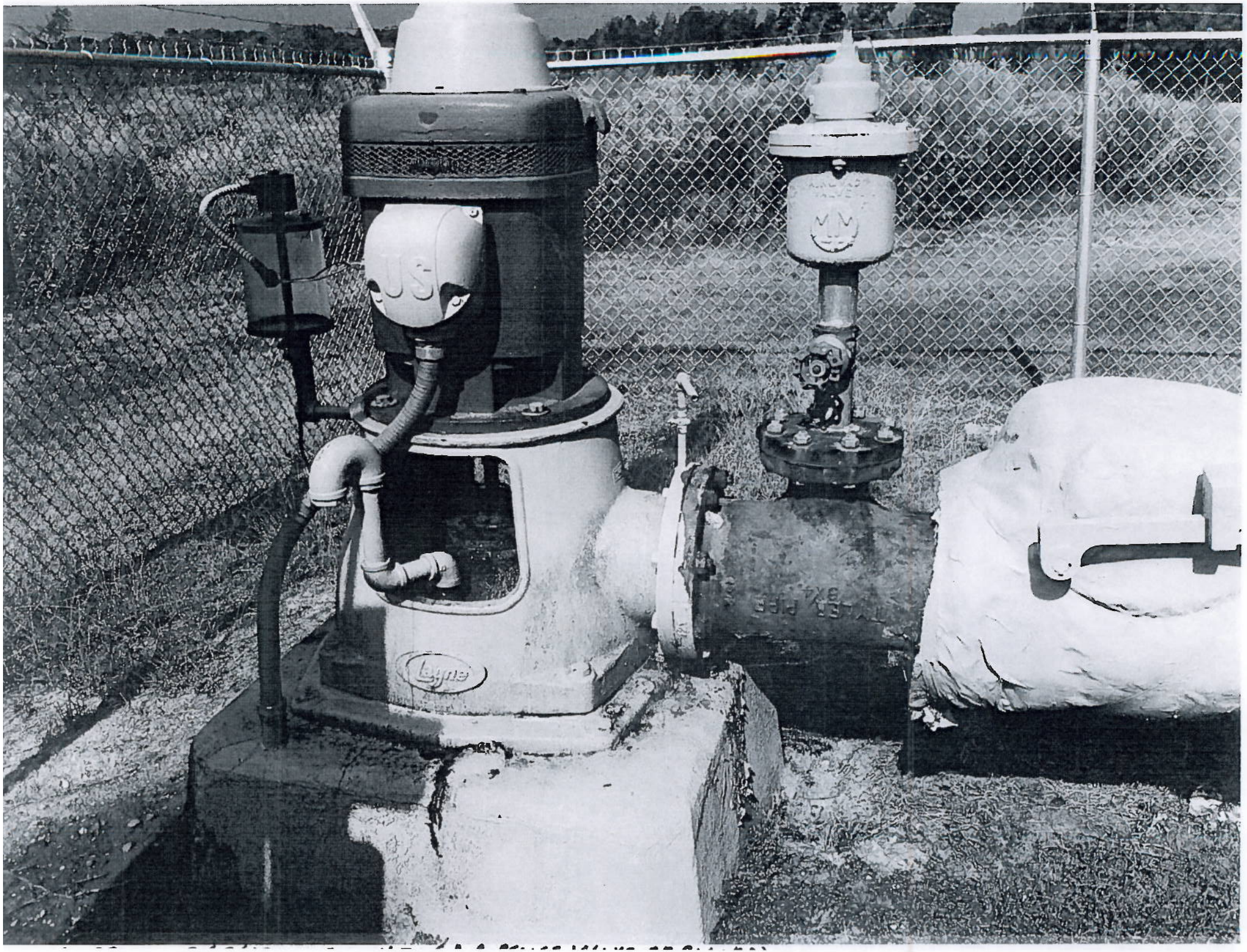
Type Codes: A – Primary Contact; B – Bacteriological Sample Bottle Mailing; $ - Billing; O – System Owner / Responsible Party; Z – Administrative Address; F – Fax; M – Mobile Phone; G – Pager; W – World Wide Web Site; I – Internet E-Mail; R – Operator; T – Water Treatment Plant / Facility; D – Distribution Facility; P – Pumping Facility; S – Storage Facility; L – Location; E – Employee; V – Vendor; X – Other

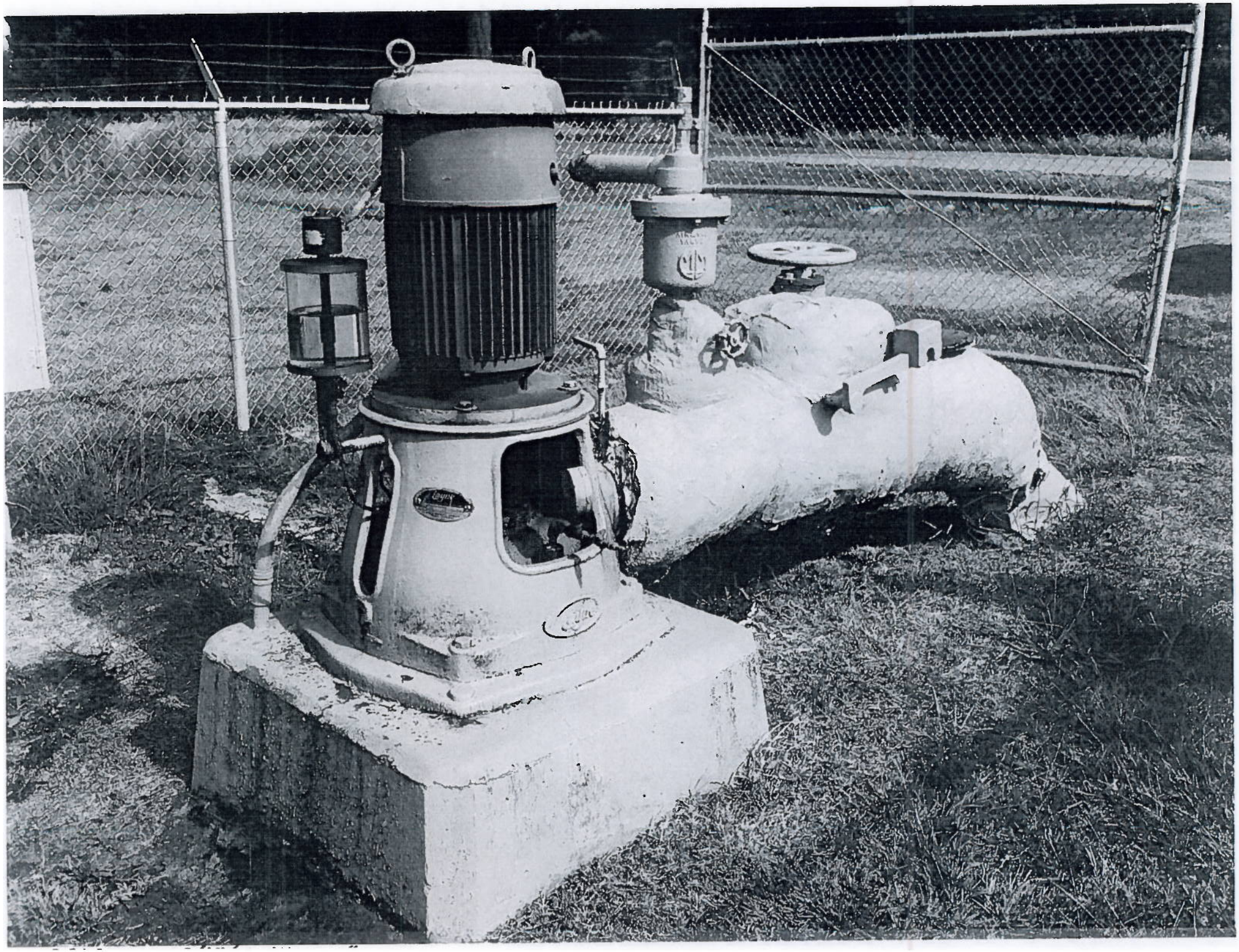
Crossett Water Commission PWS #017
Flow Schematic - 2010

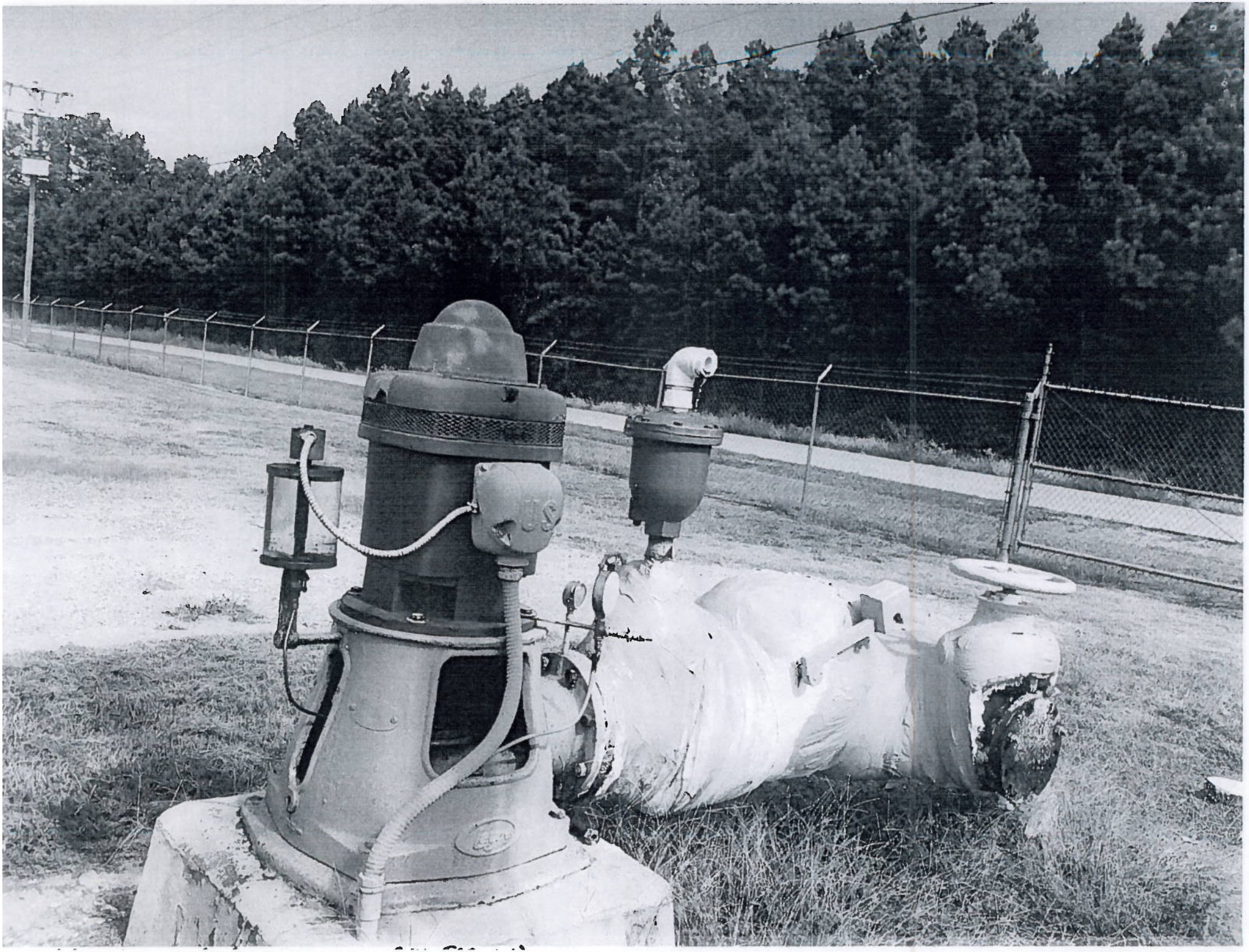


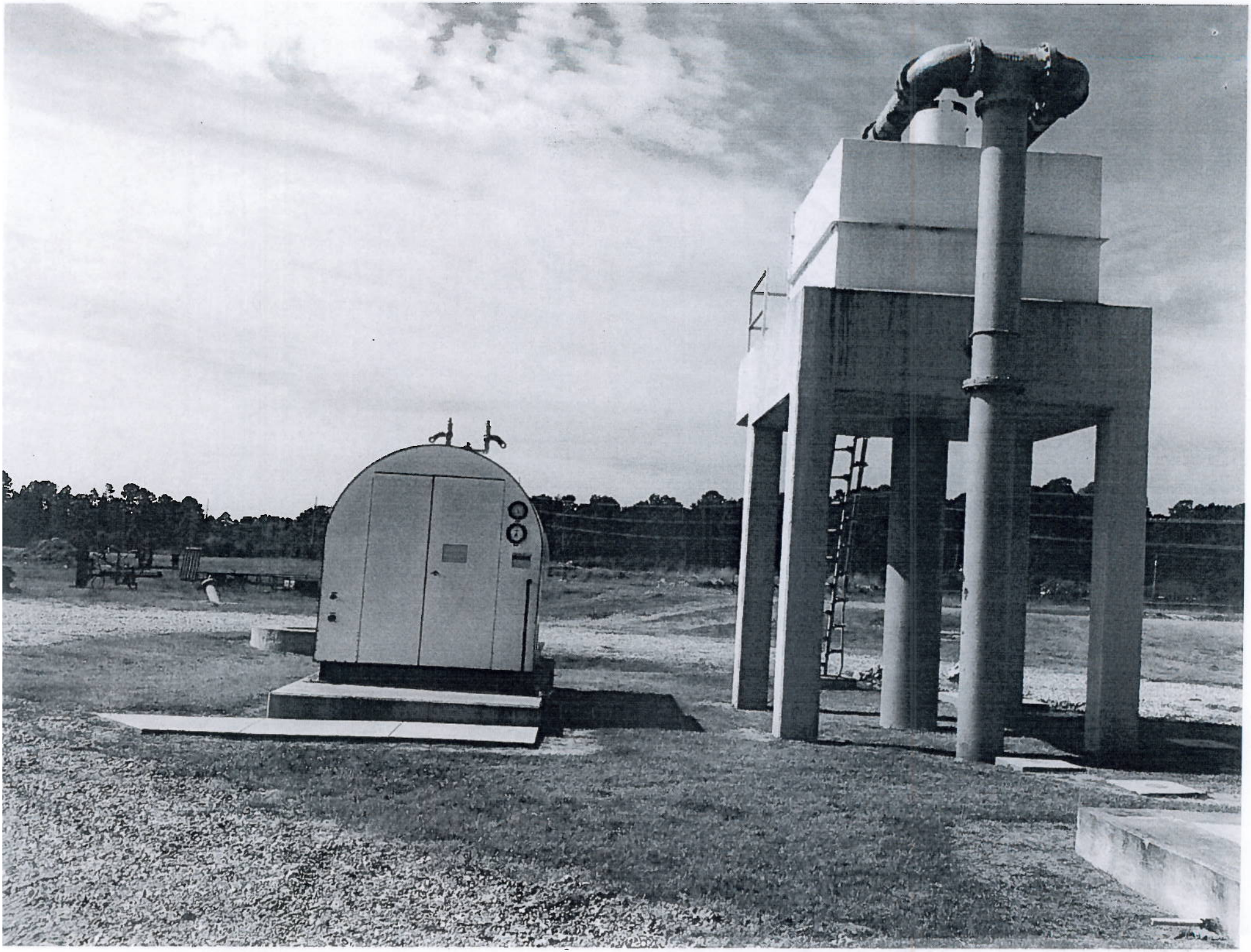


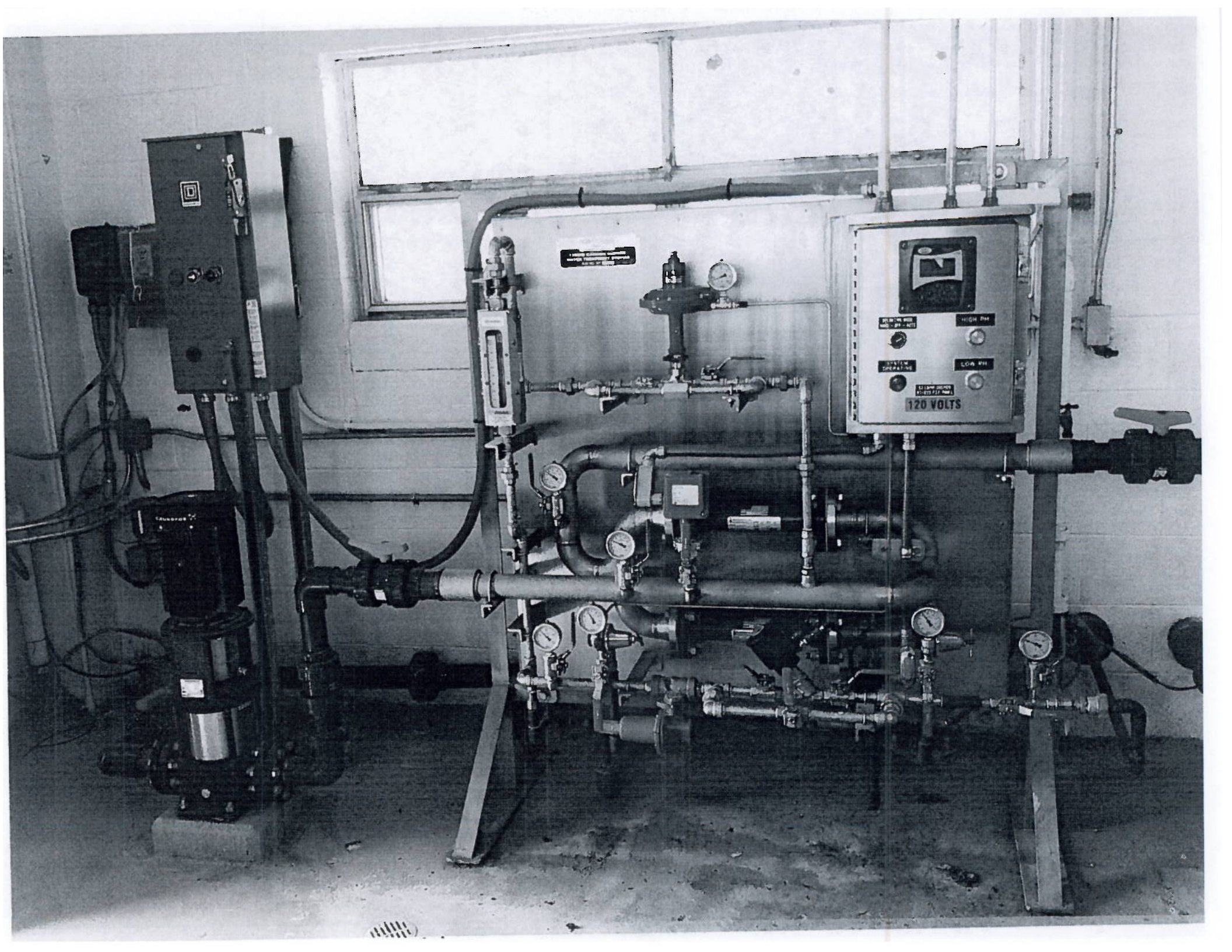


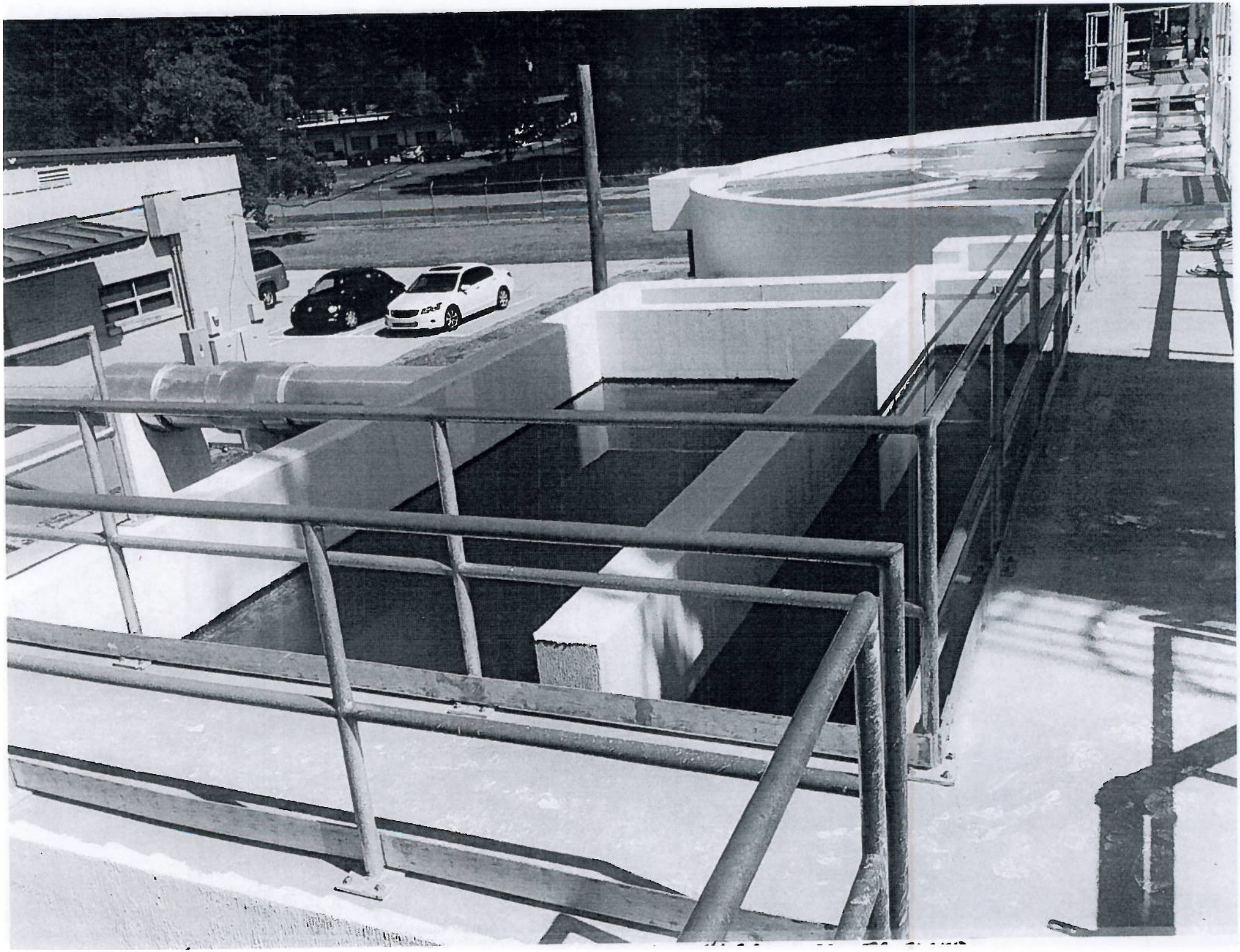

Layne

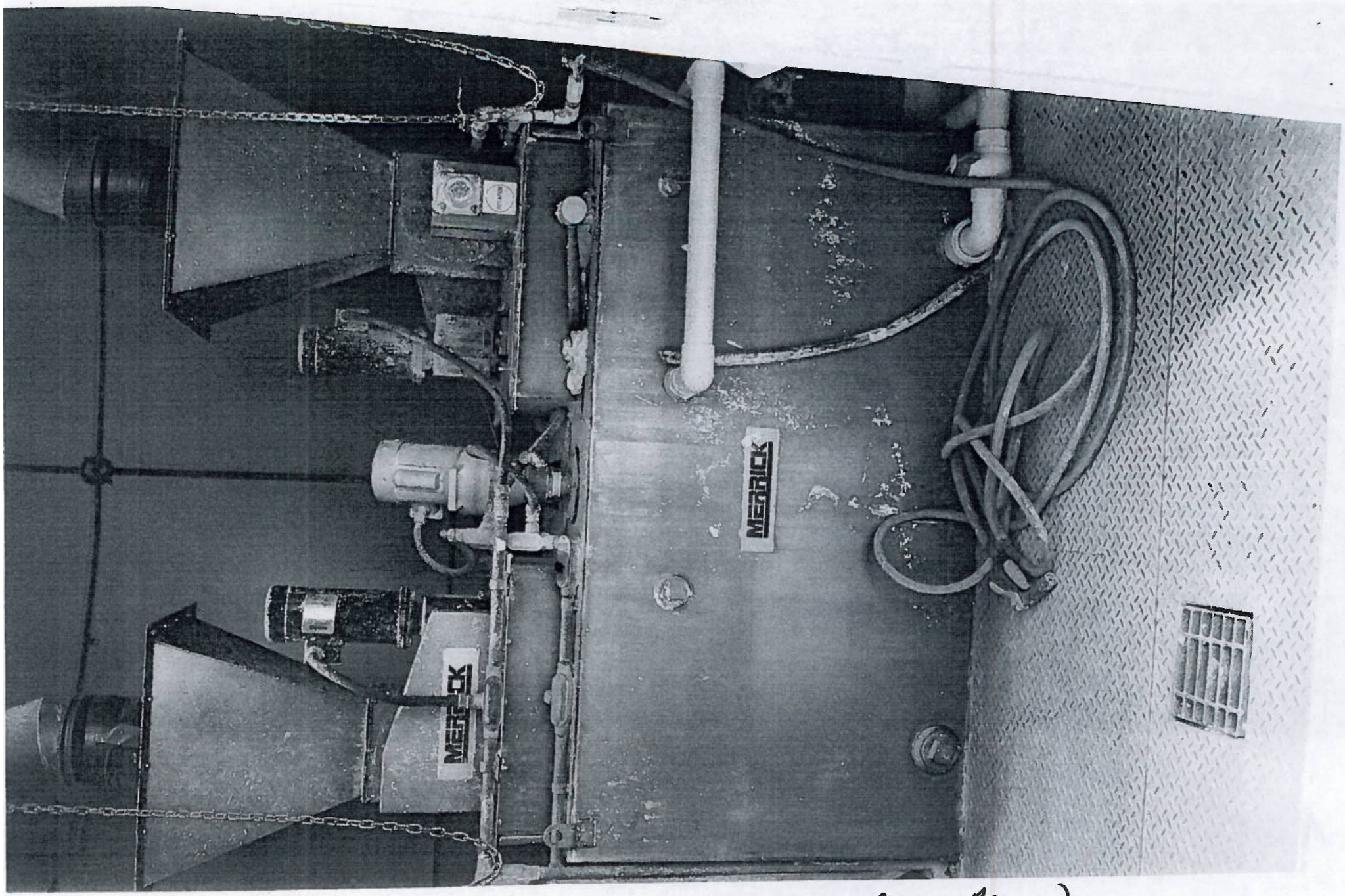




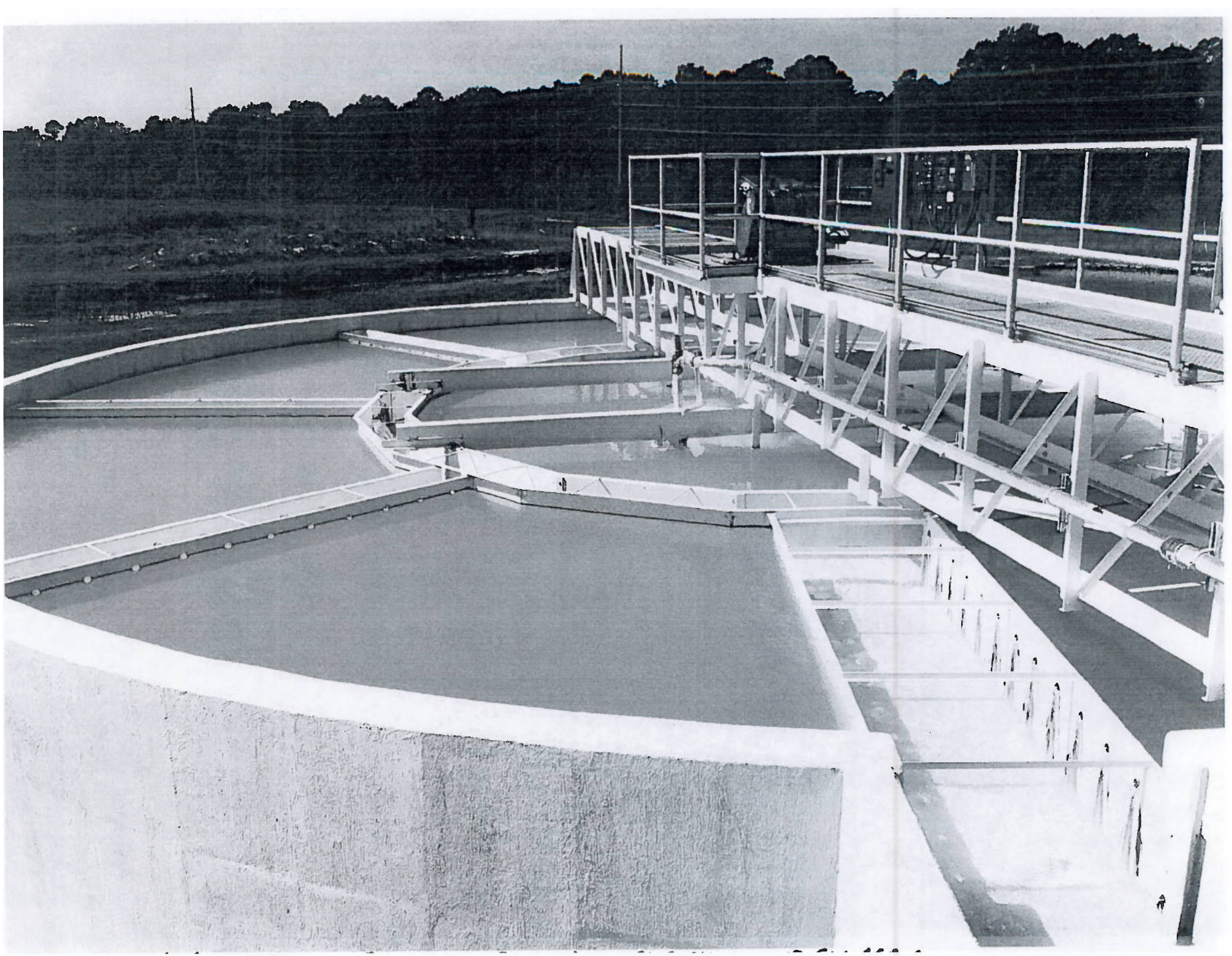


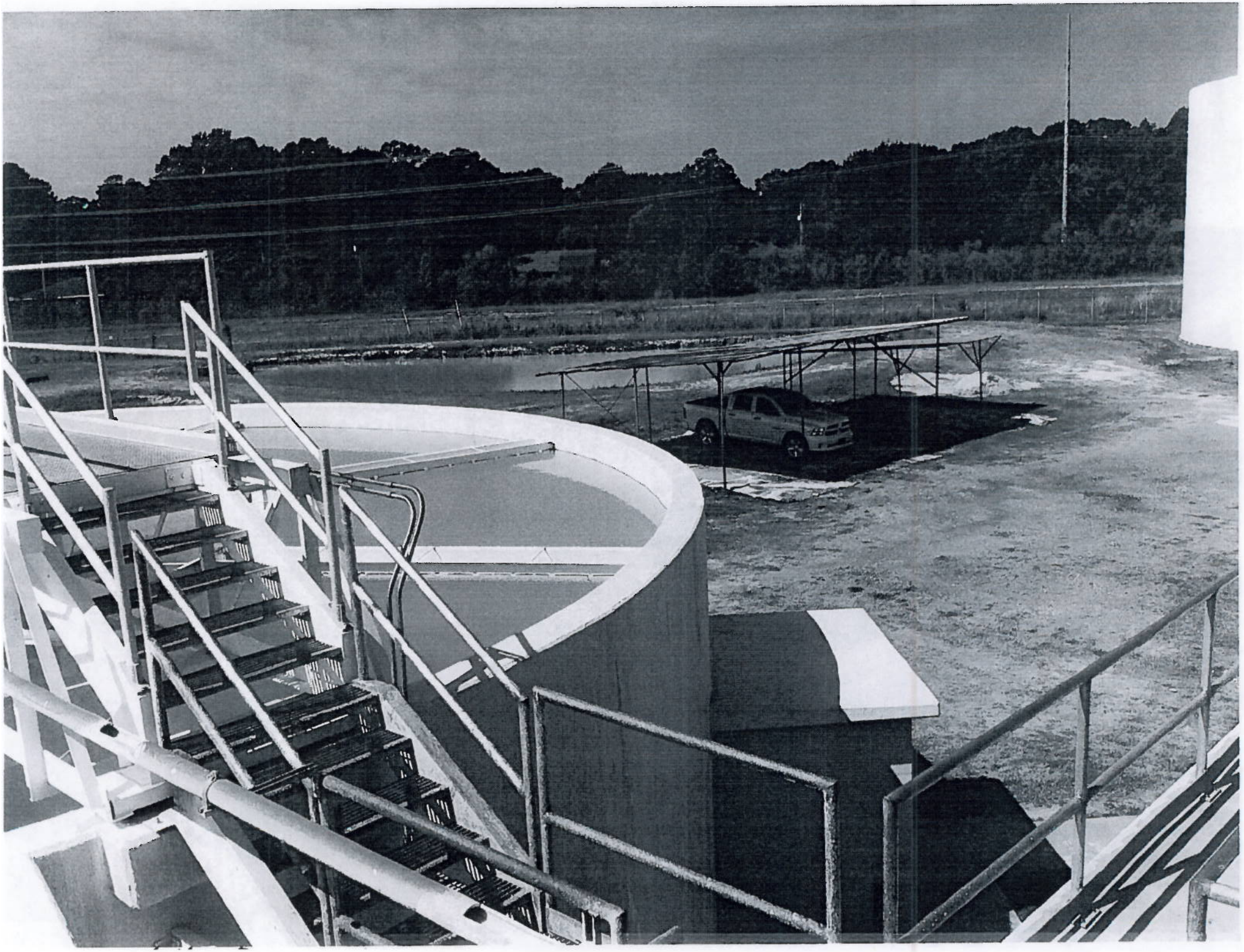

HIGH PH
LOW PH
120 VOLTS

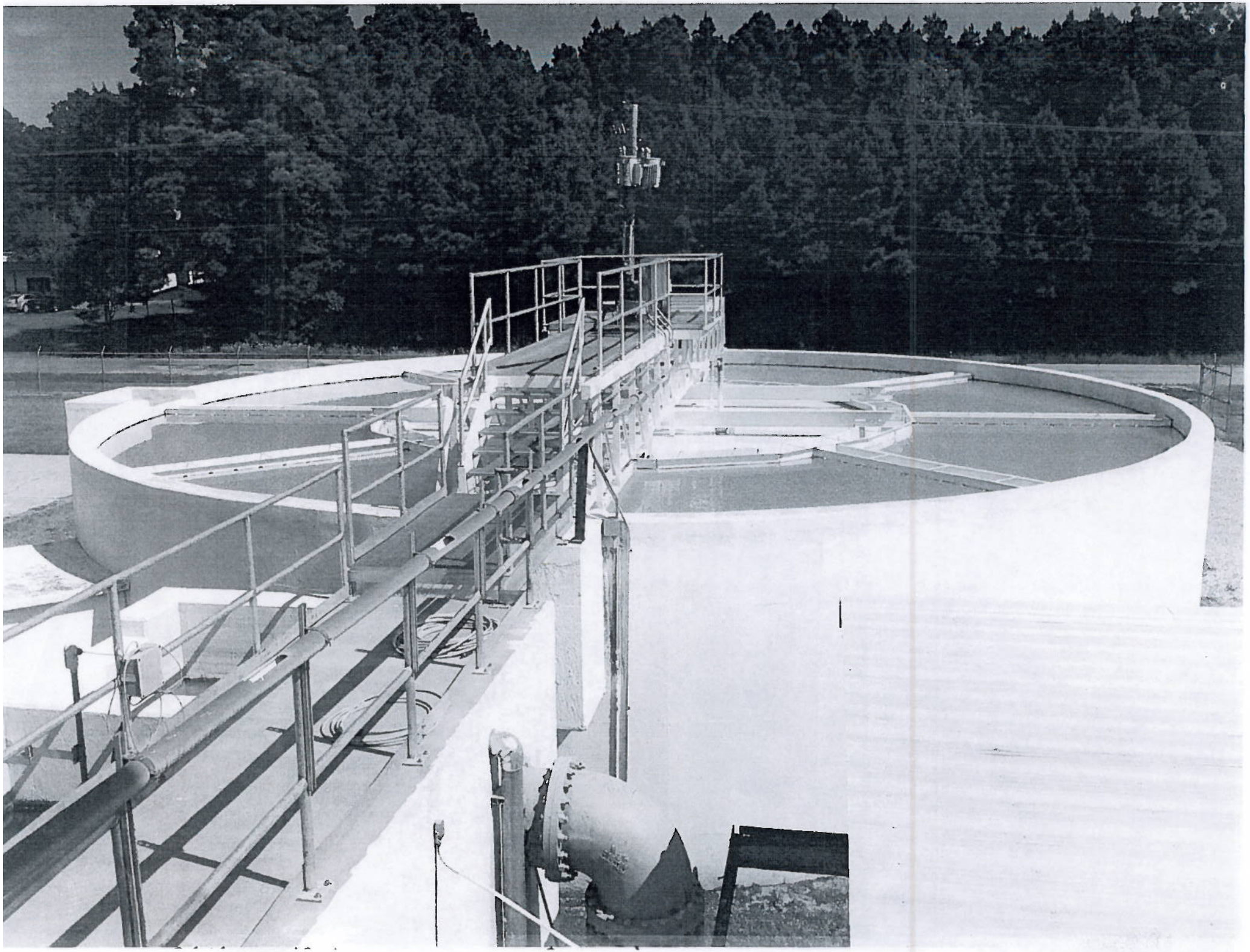




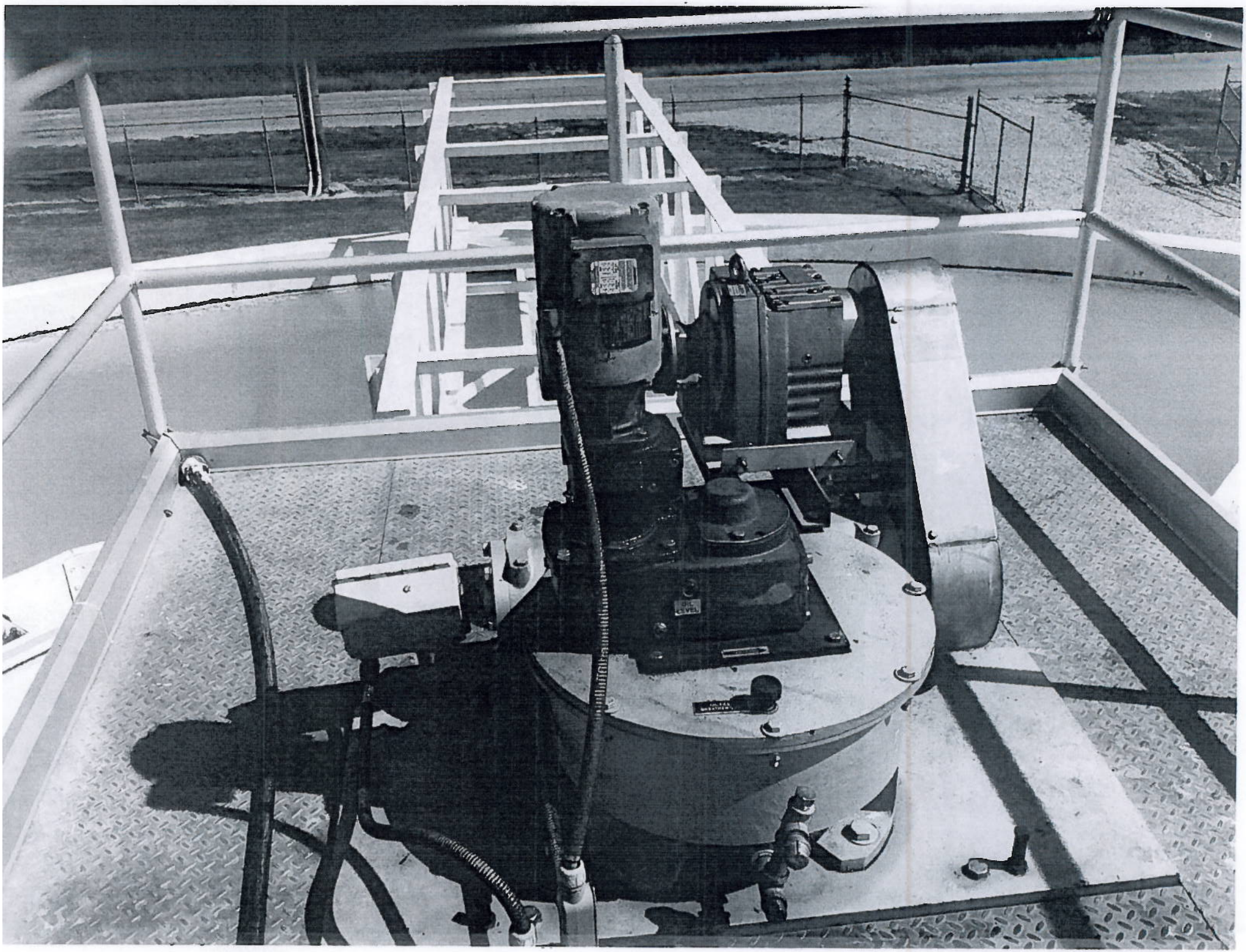
CROSSETT 9/18/13 LIME FEEDER (OVERFLOWED DAY BEFORE DURING REFILL)

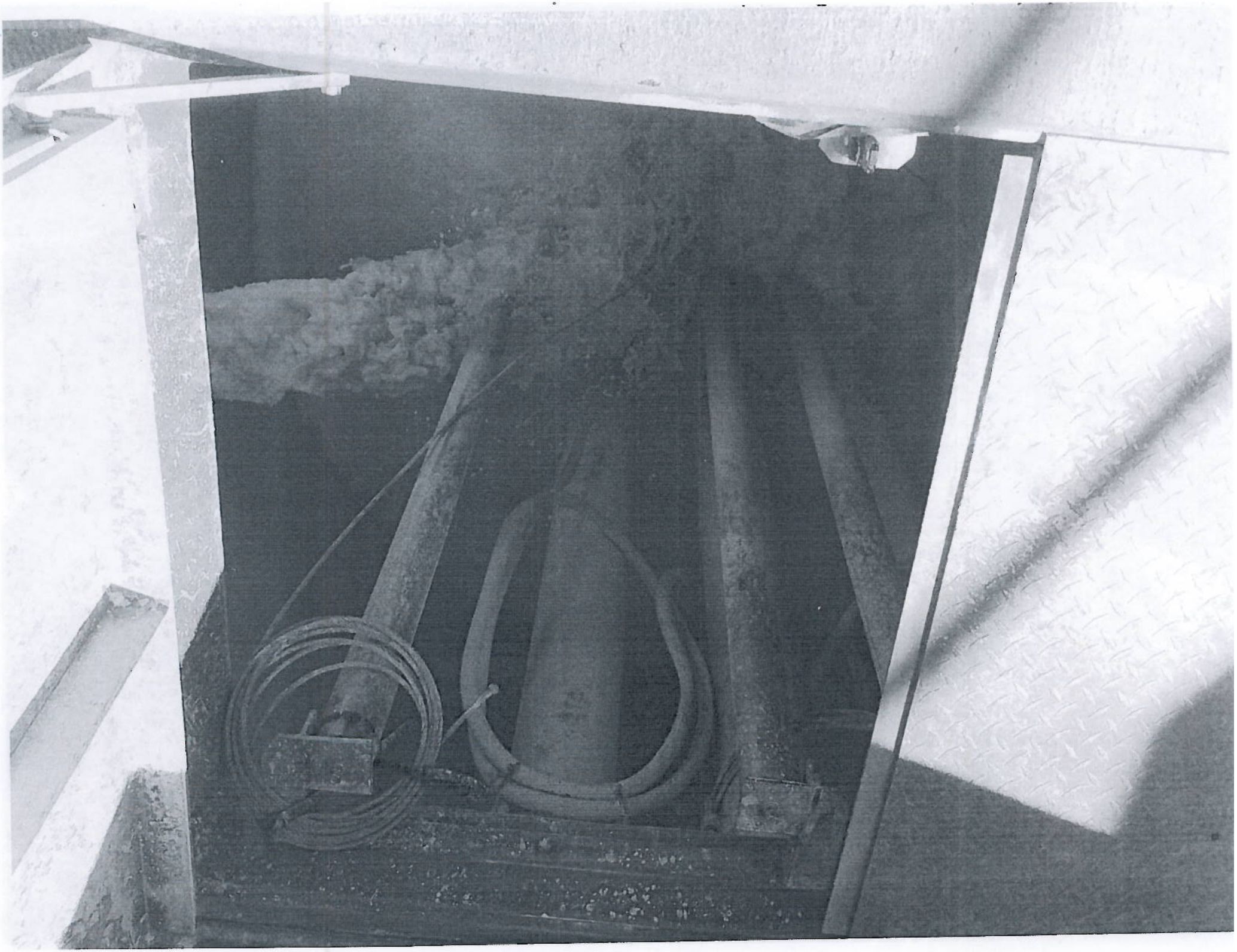


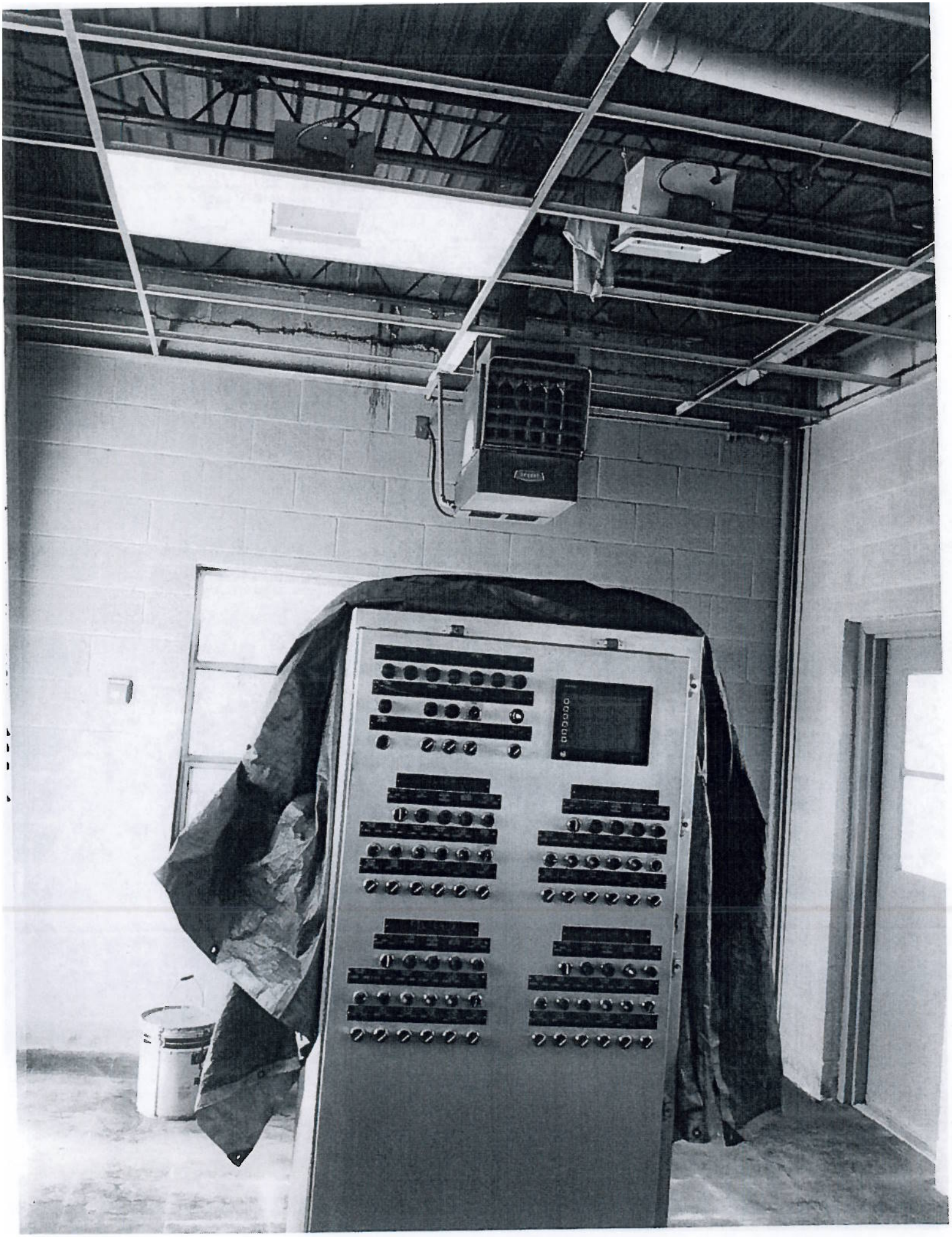


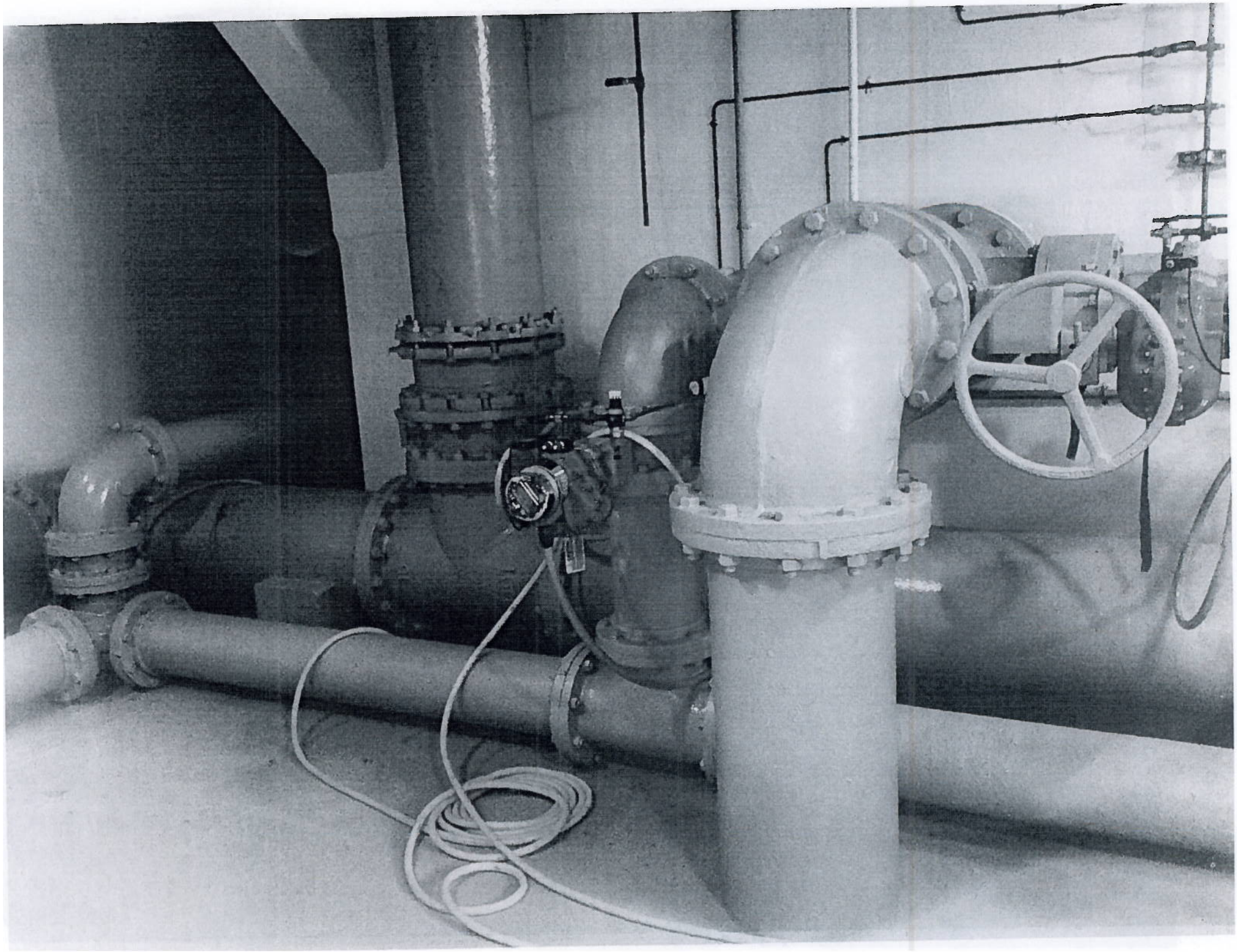


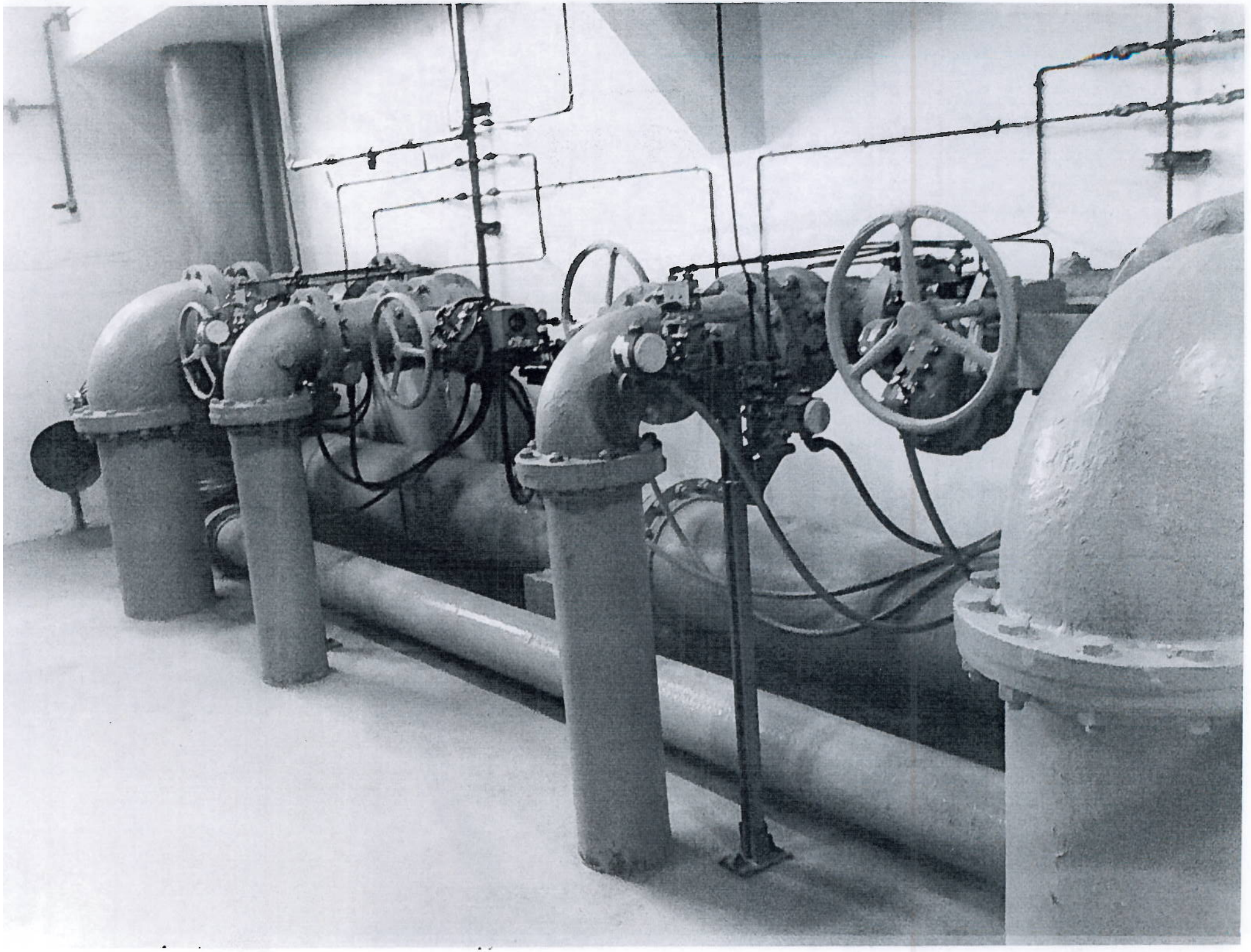
HACH

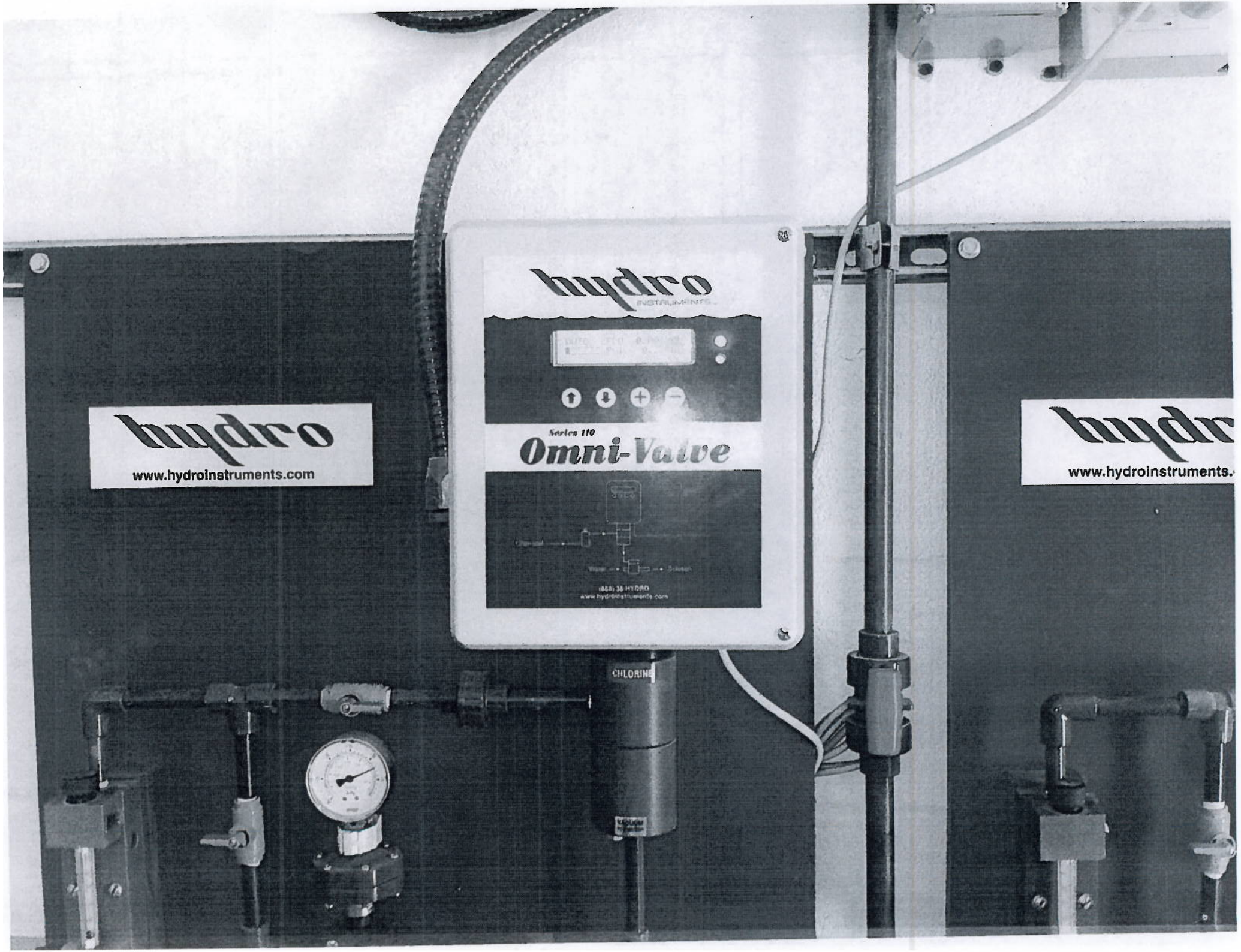








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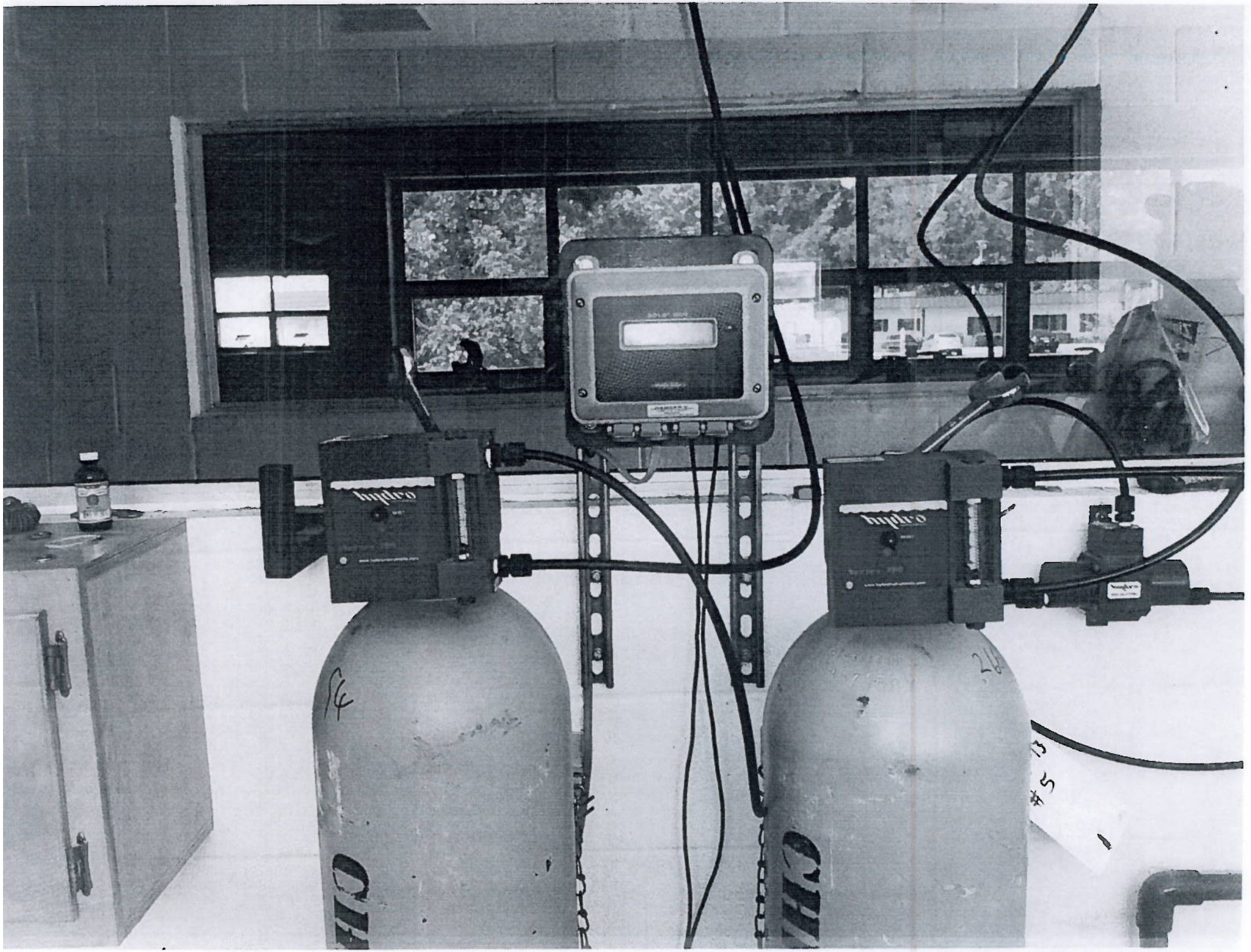
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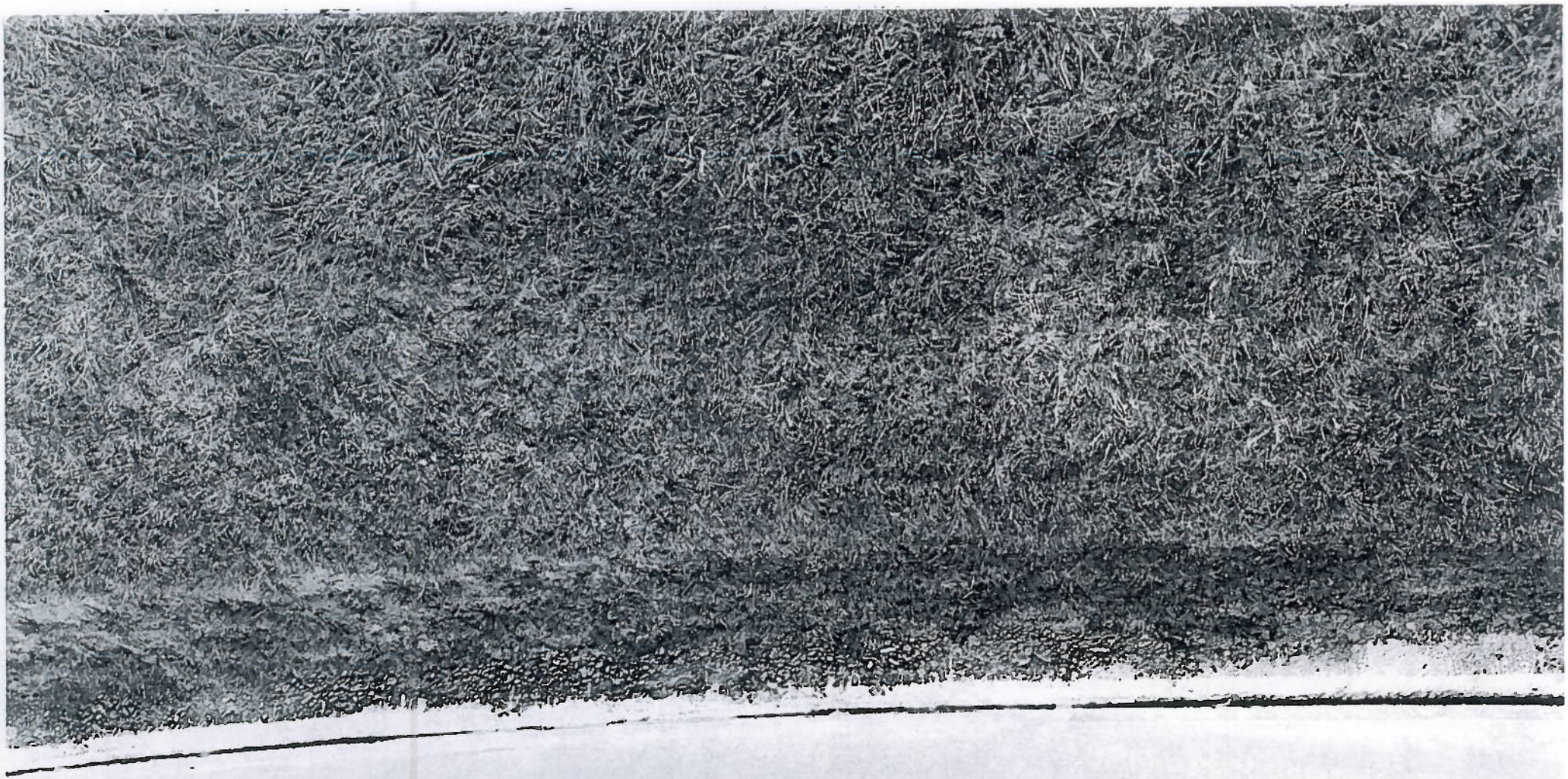
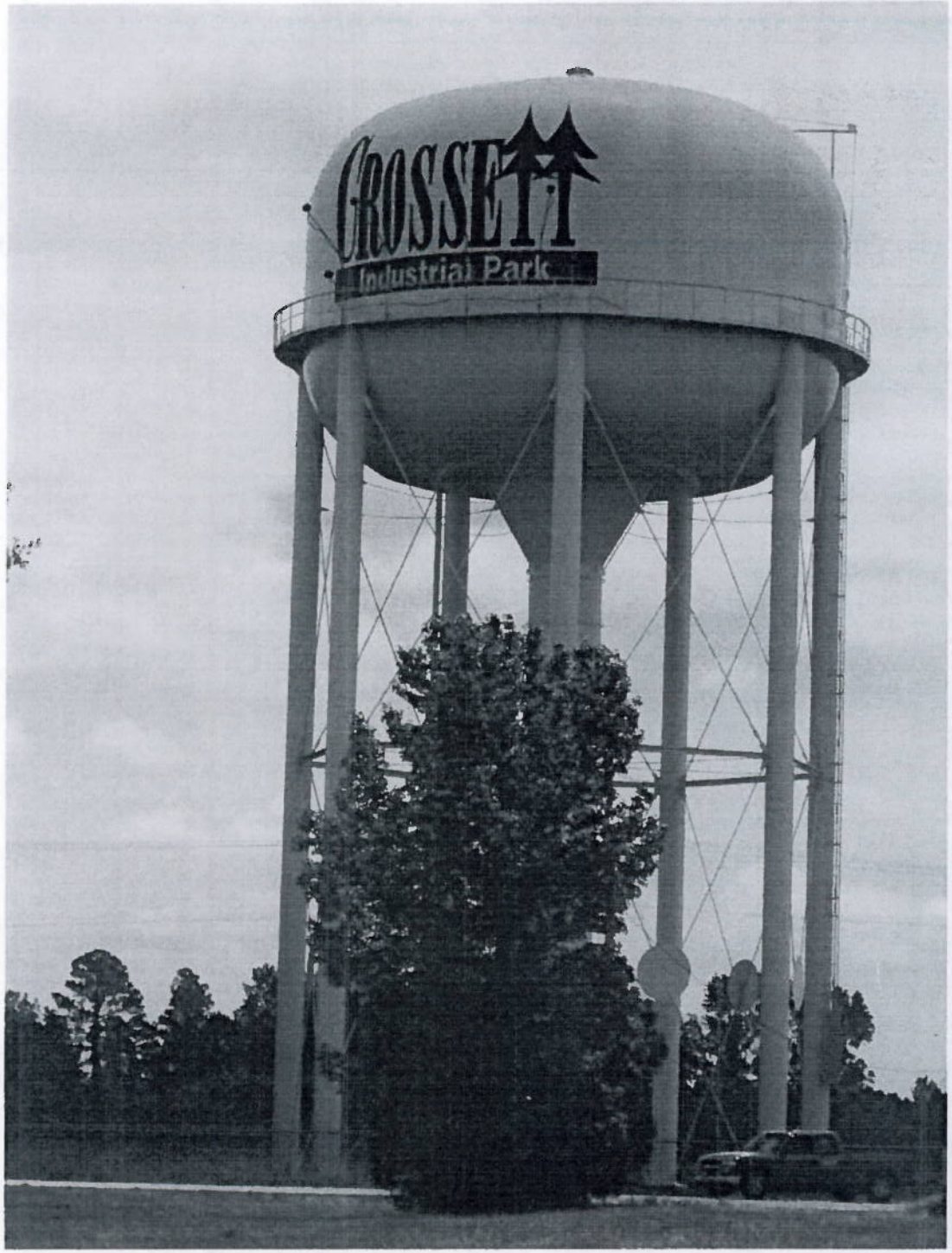
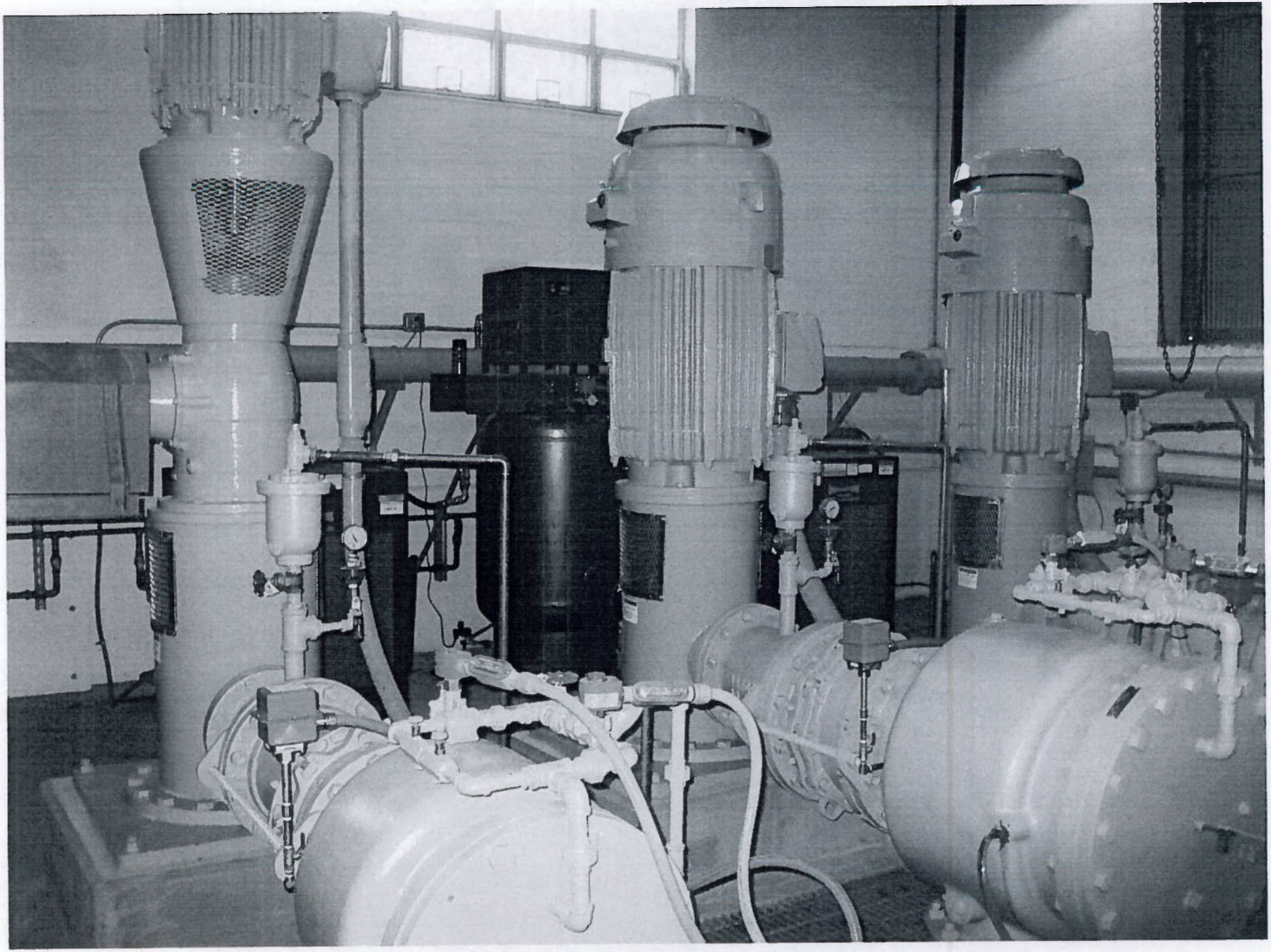
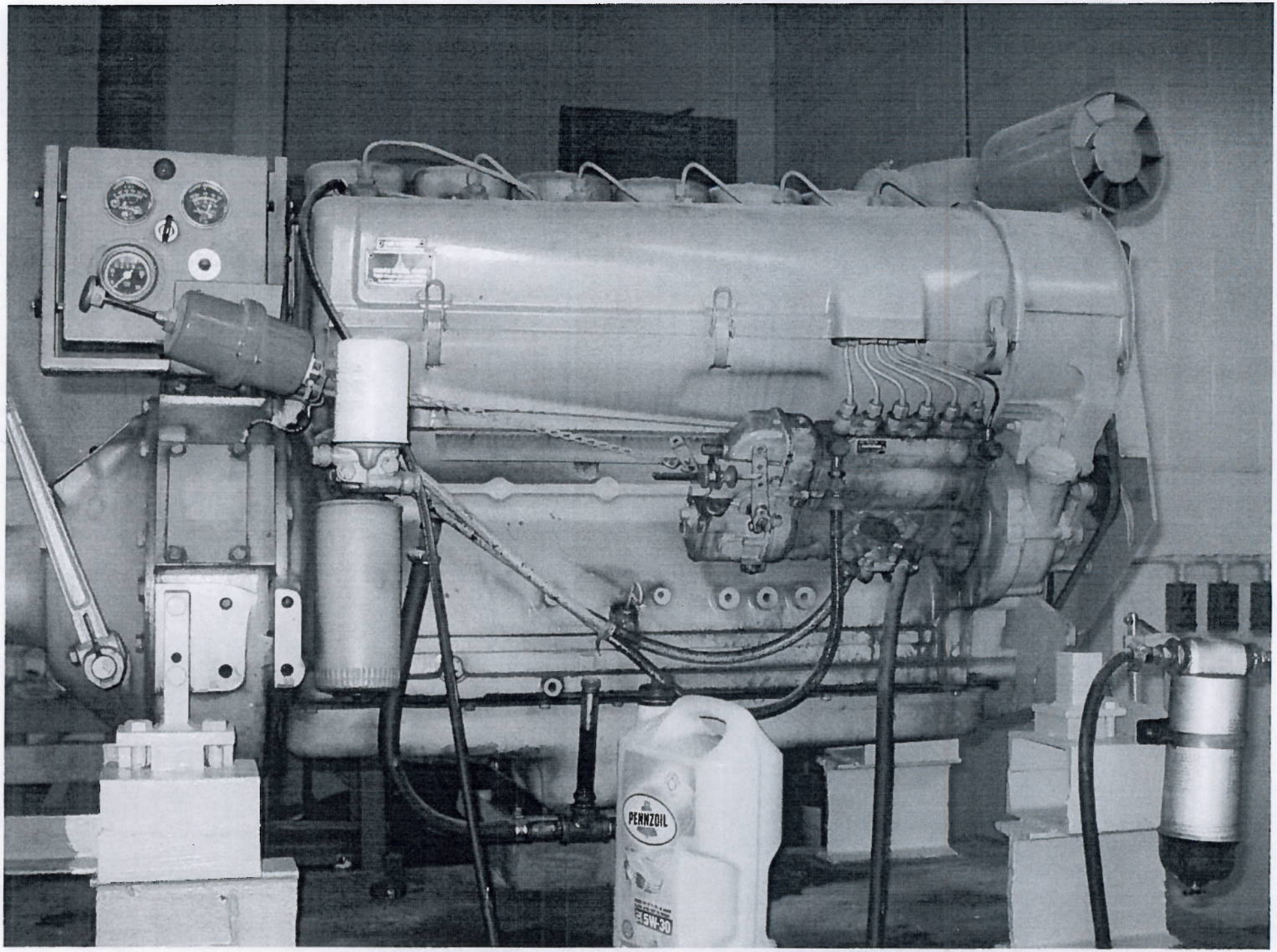




CROSSETT 5/19/10 750,000 GAL. INDUSTRIAL TANK



CROSSETT 5/19/10 HIGH SERVICE PUMPS



CROSSETT 5/19/10 GENERATOR (RUN ONE HIGH SERVICE PUMP)